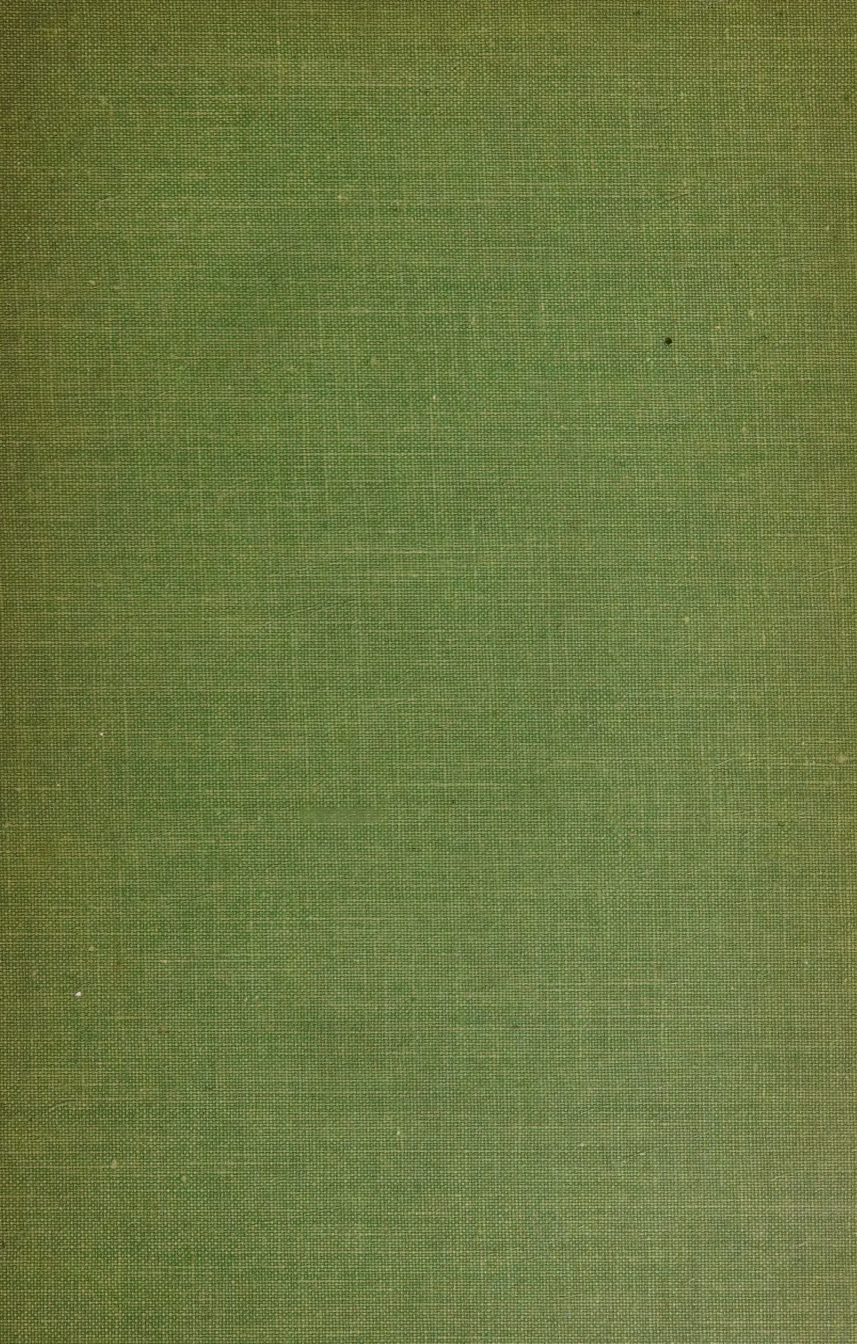
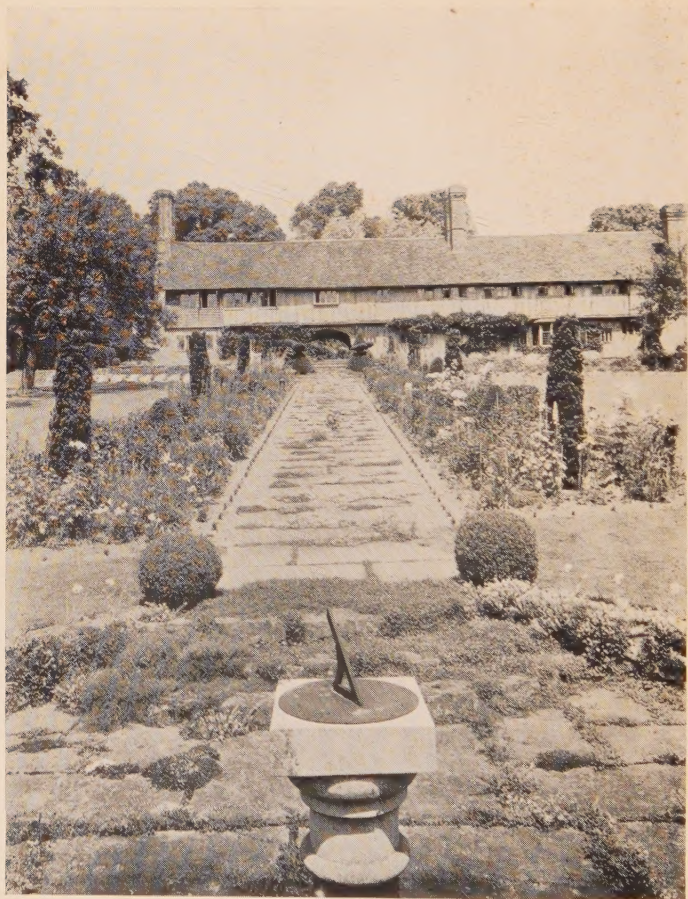






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GARDENING IN STONE



THE COURT HOUSE GARDEN, GROOMBRIDGE

Photo by R. Malby, F.R.P.S.

GARDENING IN STONE

A GUIDE TO THE UPKEEP OF WALL GARDENS
AND PAVINGS

by

EDITH GREY WHEELWRIGHT

WITH A PREFACE BY
ELEANOR SINCLAIR ROHDE

ILLUSTRATED BY PHOTOGRAPHS
AND SKETCHES

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DEDICATED
TO MY FRIEND,
E. L. A.

PREFACE

IT is a pleasure to write a Preface for this delightful book. Delightful because it is full of the beauty of living flowers and is based on personal experience. In a book these are the qualities that appeal to all lovers of flowers and gardens.

Rock gardens, dry wall gardens, in fact all forms of "gardening in stone," have a wider appeal than the first enthusiasts probably ever imagined. At first rock gardens were the hobby of the wealthy, but now the majority of gardeners make rock or wall gardens. Not only for the intrinsic interest of these forms of gardening, but because in thousands of cases they are the only means of turning small enclosures into gardens of great beauty and variety. I think that in the not very distant future most small front gardens, especially those on sloping ground, will be rock gardens. Lawns, however diminutive, involve a great deal of labour unless the owner is one of those happy-go-lucky folk who remain content with a patch of weeds. It is difficult to keep a diminutive space devoted to a lawn, and a small mixed border full of colour and interest the year

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round but with a considerable number of rock plants this is comparatively easy. In this district I have watched with interest the making of many small front gardens on a hillside, all of them rock gardens, and no two alike. In one of the most attractive a largish semi-circular rock garden faces the windows, and from the time the earliest Saxifrages, Aconites, Crocus species, Primulas, Heaths, etc., are in bloom it increases in beauty, till by mid-spring it is bright with myriads of jewels against the endlessly varied shades of grey and green of the foliage.

Some folk care only for large showy flowers, but to thousands of us the exquisite colours and manifold beauties of rock plants are an endless source of delight. These small stars set in their firmament of green are in themselves worlds of perfect beauty, as perfect as the stars in the heavens.

Miss Wheelwright's book is practical and helpful. The veriest tyro could construct a dry wall garden or lay a flagged path from her instructions. Most small wall gardens show a very limited range of subjects, and this book should prove invaluable to the more ambitious. For it is full of suggestions—not only what to grow

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but how to group. And all the plants are dealt with in their Natural Orders, which should please the botanically minded.

I have not yet succumbed to trough gardening, but when I do I shall consult the valuable list in the chapter "Gardens in Miniature: Sinks and Troughs." It is curious that this form of gardening has so far made little appeal to town-dwellers, but sooner or later these "toys" will, I think, become a cult with them. Had I the misfortune to be a town-dweller in a gardenless house I should make a sink garden and grow a collection of *Sempervivums*. For most of these curious and beautiful plants are indifferent to the smoky atmosphere of a town, and provided they can have all the sun-baking they require they flourish exceedingly.

This book covers indeed a considerable range of interest. And to the author, as to all true gardeners, every plant is an individual, and, to quote her own words, "to treat a highly individual thing in an individual way is the secret of happy gardening."

ELEANOUR SINCLAIR ROHDE

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CHAPTER I

WALLS IN THE MAKING

OBVIOUSLY there are several reasons for our enjoyment of what, despite Reginald Farrer's derision, we continue to call a "dry wall" garden, meaning thereby a wall in which earth has been used instead of mortar. In his *Tour Round My Garden*, which included an old wall, Alphonse Kerr apparently found his chief delight in the curious insects which were attracted thither. Some naturalists, on the other hand, have enjoyed their walls for the sake of the unexpected thrills brought by the weeds that came flying into the crevices, so that where you were accustomed to an *Arabis*, you suddenly beheld a *Mullein* which flattened itself out and produced a stem two feet high. But it need scarcely be observed that gardeners do not erect their walls for the sake of weeds or insects: far otherwise. They are—and in increasing numbers—erecting dry walls in defiance of Farrer's criticism because, since

he wrote in 1907, a considerable body of experience has testified to the great success of the experiment.

Some of us have adopted it through observation of Nature's own way with her walls. Such an opportunity once came to me in Cornwall. It was in the wild and rugged district round Beeny, on high ground from which the cliff fell away in an almost perpendicular dip into a shoreless sea. A rough granite wall had been flung across the moorland, and in its crevices Wall Cotyledon, Pelitory, Sea Campion, Thrift, and Devil's Bit Scabious had established themselves together with the common Stonecrop (*Sedum anglicum*), and the fern, *Asplenium marinum*. In July, the wall was a blaze of colour in pink, white, and blue. The Scabious especially was larger and more exquisitely coloured than I had ever known it; the "blue buttons and bonnets" waving in the breeze made an unforgettable picture. The stone was all granite: in its weathered and broken fissures one could retrace the manner of the sowing, from the earliest lodgment of the moss spore to the rooting of the tiny weed that found sustenance through the preparation of the soil by its predecessors. One could observe, too,

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from the pictorial point of view, the infinite diversity that was brought about by the plants themselves; how the Pelitory fell down the face of the wall in a drift, how the Thrift made a fringe of bosses and spears against the sky-line, and how the Cotyledon bent its stem to stand bolt upright against the stone like a sentinel. This clear and simple picture of the widening crannies now instinct with life and beauty taught one how a wall garden should come into being.

Many years ago that great gardener, the late Miss Gertrude Jekyll, applied her mastery of horticulture to the construction of walls on which the plants were partly wild, partly cultivated, with the result that they were all brought together into a beautiful association, in sun and shade, winter and summer. Grounded as her work was upon Nature, her building, too, had the stamp of naturalness, and the planting had the appearance of Nature's own method, restrained yet free. She, too, had learnt the habit of close and loving observation of the plants to which one has such perfect access on the face of a wall. She would sit, as she tells us, in front of the wall garden, observing the minute

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differences between the different plants of the same species, considering them with the eye of the mind, and learning ever more about their needs and their behaviour. Here is one of the great advantages of a wall over a rock garden, in which the plants are mostly on a lower level, and in which, though the general effects may be enchanting, the individual details are not brought to the level of one's eyesight, compelling that glance of deeper scrutiny to which alone the glory of the flower is revealed. It may be said of many Alpines, as of the mosses, that "they tell their story best when brought near to the eye," and, indeed, it may be added, "to the magnifying lens," which is often a revelation. It is curious how many lovers of beauty in the abstract have never paused to look into the heart of a flower. They remind one of that unhappy boy who was cross-questioned by an inscible master about the sun and his habits. "What, haven't you ever seen the sun?" asked the inquisitor. "N-not to notice it, sir," said the poor boy frankly.

Not is this proximity to our eyes—and noses—by any means the only advantage in this method of growing our Alpines in a wall. It has been

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found that many plants of high altitudes flourish better and longer in wall conditions than in the rock garden. The lovely hairiness of stem and leaf that often characterizes the "mountaineers" renders them so susceptible to damp that they have to be covered with a pane of glass in the winter. Even the smooth-leaved species sometimes succumb when there is a long period of wet that keeps the ground in a state of moisture. The only way to overcome this difficulty is by the formation of an artificial moraine, which provides dry conditions at the top and wet below, while connoisseurs and exhibitors seek the shelter of the Alpine house. But dry wall gardening which provides sheltered pockets for delicate things and a perpendicular instead of a horizontal rock surface for drifters and trailers may be said to approach the ideal condition for species of both the mountains and high meadow ground. A wall, moreover, is often cheaper and easier than a good rock garden to construct; nor does it require so much attention.

The selection of plants suitable for cultivation is a wide one, because there are, roughly, two different kinds of walls. The retaining or boundary wall is a common feature in large country gardens :

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sometimes the path to the house runs up a slope connecting the house or its terraces with the lower road. In such a case, the earth at the back of the wall affords a deep run for the roots of shrubby plants which can be planted along the top and will make a permanent picture of natural beauty.

The other type of wall has a central core of earth, and it is this type which is the ideal structure for Alpines. Such a one can be put up by any handy mason. A height of five feet suffices, with an earth core not less than a foot to eighteen inches. In a comparatively short time it will become beautiful, and there are many small gardens where it would look better than a rock garden with its irregular design. The trench for its foundation should be dug out to a foot, and filled with coarse rubble, well packed together so as to leave no hollow spaces. Rubble and stone suitable for the purpose are often thrown out in a builder's yard. This foundation must be rammed down with a mallet, and then a few inches of soil can be laid over it. The principal rule that is to be remembered in this lowest course applies equally to all the rest, which are laid down in the same way: it is,

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never to leave any hollow spaces, but to keep on working the soil down between the stones. When this course is finished and the next layer of stones begun, another rule comes into prominence. It is: to give each stone a slight tilt backwards. As this is systematically done, the result will soon be seen in the wall surface where the tilt is responsible for the jutting out of the lower portion of the stone, so that the rain in falling is retained. Also, each course is laid an inch or so nearer to the central core than the one above it, an arrangement which gradually reduces the width of the wall. This slope upwards on both sides is known as a batter, and makes for greater strength as well as for better drainage. A wall measuring four and a half feet at its top will have started with a width of five and a half feet on the ground.

The stones may be chosen of unequal sizes, but a few small wedge-shaped ones are useful in the process of building, to keep the larger blocks in position. The stones must be laid so that the vertical crevices are not placed over each other. A few pieces longer and narrower than the rest are placed crosswise here and there so as to tie in the wall face to its central core.

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While the second course is being built, the chosen plants should be brought into the scheme, for the success and beauty of the wall garden will depend upon the way the planting has been carried out. Indeed, it is well to sketch out the general scheme on paper. It will be a help in avoiding two chief errors: an effect of spottiness with too many small things dotted about, and an overcrowding of great masses in juxtaposition. If you study old walls, you will be impressed by a certain amount of balance achieved among the plants that have obtained a foothold. Plants tall or short, tough or succulent, hefty evergreens and little annuals that hire a crevice for one season and fade out of life, leaving their progeny to the breeze—all these things dwell together, weaving a tapestry that in the end looks as natural as the moss upon a tree. As a rule there is one dominant point in the harmony, a drift of wild *Clematis* perhaps, or a pillar of Ivy whose dark bosses are flung against the winter sky when the last seeds of the *Clematis* have floated down the wind. So we learn to plant for winter and summer alike. We note that the small wild things are making seasonal preparations each in their own way, according to the law of

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their tribe. Many of them form rosettes that are tough and hairy, the leaves pressed flat against the wall. Some, like the Hawkweeds, have an exquisite white felt composed of slender hairs divided at the top into prongs. The little Whitlow cress (*Draba*) and the Rock cress (*Arabis*) also have a protective mat of wonderful barbed hairs. All these arrangements are designed to protect the wall plant against excessive evaporation in summer, or from superfluous damp and cold in winter. A wall, we perceive, like a bog or a meadow, has a highly specialized flora of its own. Yet it also forms a hospitable bulwark for many woodland and hedgerow species, and even the big Mulleins and Foxgloves can often pick up a living in the crumbling joints.

Our thoughts then fly to that other specialized flora which we import with such possessive joy from the high rocky places of its birth. Here is specialization adapted to their brief period of floral activity which alternates with a prolonged winter sleep. Yet the Alpines have many points in common with our own wall species: they, too, have developed long tap-roots that feel their way for several feet down into their stony chasms; their rosettes cling to the rock face,

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and they are often covered with silken hairs; a fact, however, which makes this particular kind of hairiness intractable in fog-laden or smoky districts, as well as in rock gardens where the earth moisture clings about their crowns. Their needs are different from those of our rain-swept hemisphere; yet by long and faithful study we have succeeded in inducing them to grow in as natural conditions as we can provide for them. The Alpine lawn and the moraine are both means to this end, excellent from the gardening point of view, but less satisfying from that of the artist who wants to bring "naturalness" into his rock garden. This can only be done with a large space and a considerable outlay. In small and medium gardens very few really good or natural effects can be obtained. Even the more ambitious schemes, with escarpments, valleys, and scree, often leave an artificial impression which remains in the picture when we review it as a whole, apart from the growing things.

Now, in a wall there is no such attempt at a picture: it is the only way of growing saxatiles without offending in some degree against the "Nature" which they represent. Its two great structural advantages are its access to a constant

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current of air and its provision for the sharp drainage which all mountain plants demand. Rock garden experts have always rubbed it in about the elongated roots of the Alpines, and certainly many wall plants also have a root system out of all proportion to their size. A tiny cress may explore to the length of nine inches, and an amazing case was related last September in *Gardening Illustrated*. An engineer at work upon Tonbridge Castle had pulled out a root of wild Mignonette which measured nine feet. The root run in a wall must, therefore, be as carefully provided for as in the rock garden. Where the soil space between the joints of the stones gives ample room both for fibrous and for tap-roots, and is combined with perfect drainage and plenty of air and sun, then many a plant that is "miffy" below will succeed on the wall face. The earth in the fissure suffices for its early sustenance: the cool, adjoining stone affords a familiar touch, and as growth proceeds, the plant acts as it does in its native fastnesses, disintegrating the rock itself for its needs. It is also free from many of the marauding insects that haunt the lower levels, the unconquerable snail being, perhaps, its only enemy.

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A large choice is thus open to us in starting upon a newly and specially fashioned wall. After the position and aspect have been chosen, we can draw up a plan for the draping and planting, according to the plants we choose. These will be considered later on in detail, but one good working rule at the beginning is to avoid putting in plants at regular intervals. It is a good thing to aim at definite groups of closely related things, like the encrusted Saxifrages, some *Campanulas*, the Pinks, tall and tufted, or the fat, succulent rosettes of the House Leeks. Care should also be exercised in the grouping of colour. The flamboyant spring effects so often seen in planting yellow *Alyssum* with *Aubrietia* and pink *Lychnis* are not really satisfying. Harmonious pictures can be foreseen and put together by using some of the low-toned plants like *Achillea* or *Artemesia* among the more brilliant flowers. Even on a wall specially designed for Alpines, it is a good plan to make a bold break in the design by a drift of some coniferous shrub like *Juniperus sabina prostrata*. The best positions—often where a joint opens upon a small projecting ledge of stone—must be reserved for the choicest Alpines, and care must be taken

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lest these places should be shaded or exposed to the drip of training plants like Sun Roses or *Iberis* on an upper course in the wall.

When planting is done while the wall is in progress, it is easy to spread out the roots of the plants into the body of the soil or insert them into the fissures. Small pot plants can be used in this way, and the smaller and younger they are the better. In fact, a seedling has a better chance than a clump taken from the rock garden. The deep pockets must be filled with the special soil prepared for the different species; a light sandy loam for the lime-hating Alpines, a gritty limestone mixture for pinks and Saxifrages; and a general compost of fibrous loam with some humus to retain the moisture for the species which are indifferent to soil. In the case of seedlings and of young plants from pots, care must be taken not to crush the roots while they are being inserted. It is a good plan to put a few small stones round the soil that is rammed down about them so as to prevent a larger block from pressing upon the fibres directly. Care must be taken to make the pocket absolutely firm so that it shall not be dislodged by settling movements or crumble away in drought, leaving

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the rootlets without a foothold. Working with a good compost of grit and holding loam, this danger can generally be averted. The trailers are the easiest to handle. Once planted and settled in with large stones all round them, they will need no more attention for years. The smaller tufted things and Alpines need the greatest care, and should be brought to the face of the wall and inserted when the joint between two stones is being filled with its appropriate earth. These rock species benefit most from the little ledges formed by the separate courses in the construction, for these form slight resting-places for things like *Ramondia* or *Haberlea*, which can be held in position while they are being planted between two vertical stones. Both these genera form magnificent spreading rosettes in such circumstances.

The position of the wall has often to be determined by the lie of the land, but when choice can be exercised, east and west will be found generally suitable. All the sun-loving species will benefit by the morning sunshine, and Saxifrages especially do well on a wall facing east if they are placed on the upper courses with full exposure to the air. Trees or other buildings

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near a wall garden greatly detract from its merit as an Alpine home.

If it is a retaining wall with only one face, a south-east aspect is a good one. A double wall facing north and south can, of course, be made suitable for many species, though the choice will be to some extent limited, for there are few plants specialized for a sun-baked position, and fewer still for a sunless site. Some Alpines, however, like *Ramondia* and *Haberlea*, will prefer the cool side provided that it is airy and away from the drip of trees. The base of a north wall is an admirable place for ferns, many lovely species of which are well worth growing. If the ground has been thoroughly prepared, some of the *Primulus*, like *P. sikkimensis*, *P. cortusoides*, and *P. viscosa*, would do well companioned by the beautiful *Trollius*, some *Ranunculus*, *Dodecatheon*, *Mimulus*, and *Corydalis*.

The material of the wall has often to be determined by local conditions and expenses. There are some places where brick is cheap while stone is dear, and one may be tempted to make use of the brick. But beautiful as it is when old and weathered, brick is far less satisfactory for growing plants, as it is lacking in

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nourishment. An equally beautiful colour, a low-toned red, is given by red sandstone, particularly when it comes newly blasted from a quarry, showing grey sections where it has come free at the joint. One sees many noble walls of this type in Devon, Hereford, and Somerset, with wooded hills above them and the red earth at the base. The siliceous limestones also weather to a comely brown and ochre.

It is not an easy matter to adapt one of these large masonry walls to wall gardening unless there is turf at the back through which the plants can work their way to obtain nourishment. In a masonry wall that is standing free, openings of about five inches must be scooped out in the mortar, but they must not be too many. Care must be taken not to injure the plant roots when they are inserted, nor may any spaces be left in the hole. When they are established, the face of the wall is better rebuilt with some small stones set in position with some moss and clay. In the case of an old wall, in which the mortar will have perished at certain points, the work of adaptation is made easier, for it often only means that small and perhaps uninteresting plants can be ousted from the crevices.

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In going about the country one soon acquires a "wall sense," and then it becomes most illuminating to watch the gradual growth of a flora—whether natural along the roadsides or in one's own garden. The appropriation of a wall by vegetation varies according to climate. In the north it proceeds slowly, preceded by the most indomitable of mosses like *Barbula*, one or two *Bryums*, or *Brachythecium*. These form a crumbling residue on the top or in the joints where small grasses may insert themselves followed by the trailing Toad Flax and a few common crucifers. Pelitory of the wall will flourish in any climate, and larger plants like Traveller's Joy and the red Valerian may get a foothold later: when they do, their roots go down several feet into the body of the wall, though neither of them exercise such a disintegrating force as Ivy.

In the West Country, the walls give sustenance to a lovelier and richer vegetation of flower, moss, and fern. Where the climate is moist or the wall is bounded by trees and shaded, a light film of green is soon formed by the unicellular plants in whose almost invisible web the spores of the mosses mingle. In the winter, as every

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moss-hunter knows, hundreds of species will be found in fruit. Often they are companioned by small ferns, Wall Rue, or Ceterach, while among the flowering plants are numerous stragglers, from the tiny Toad Flax to the rare *Draba* of the castle wall. And a study of these conditions shows us that we do well to follow Nature's method and to begin with the seed. It is an interesting plan to work up a handful of earth into a moist wall and to scatter it with seeds. The moist lumps are inserted into a crevice; some seeds will germinate, and stout young seedlings will result. In a letter of last autumn, referring to this question of sowing dry walls, Mr. W. E. Th. Ingwersen stated that by merely casting suitable seeds upon the moist surface of a wall in the autumn he had raised a crop of plants which ultimately covered a large surface.

Wallflowers, Snapdragons, and Pinks are among the best hardy plants to treat in this manner. It is a rather slow process, but it has the compensating interest of an adventure of which nothing precise can be foretold.

In building, special pains should be taken with the south side of the double wall. On the whole, except for a specialized flora represented, say,

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by *Gazanias* and *Mesembryanthemums*, the south aspect is the least desirable. The above genera thrive in a sun-baked position, which they will share readily enough with Stonecrops and *Sempervivums*, but the majority of plants which are not adapted to withstand prolonged drought by a succulent leaf system will suffer from a rapid rate of transpiration in a hot summer. If, on an August day, the root tip of a young plant comes in contact with the stone in a *cul de sac* where the earth is missing, the chances are that the plant will suffer collapse. I once saw an *Æthionema* crumple up in this way, just like a hybrid *Clematis* when for no ascertained reason it suddenly dies. It is a most uncomfortable experience for the gardener, who can only hover about helplessly, knowing that nothing can be done.

The south face of the wall, therefore, must be carefully fashioned to withstand periods of drought. The pockets must be tightly packed with soil so as to leave no crevices, and there must be plenty of humus to retain moisture in the prepared earth. A long root run should be arranged where it is possible. If these precautions are taken, it is likely that in the majority of our summers watering may be dispensed with,

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though the occasional application of a hose along the length of the wall after a hot day will be very beneficial.

The kind of stone requisitioned in building is closely associated with the typical plants which are found upon the various geological formations in the natural state. The most familiar building stones in our country belong, like the Portland and Purbeck series, to the oolitic limestone; but granite, sandstone, and conglomerate are locally used. In Somerset there is a variety of the Millstone grit called penant, which is a splendid stone, and so is the reddish sandstone of Hereford, which, when quarried, shows partings of red marl. Of equal merit and beauty is the sandstone of Sussex, of which many of the Sussex manors are built.

Any of these materials can be utilized in wall construction, and where a prepared compost is used, this is of more importance than the stone. Its importance depends upon the acknowledged fact that many species owe their peculiarities to the ground they live in, and although it is sometimes urged that under cultivation Alpines become indifferent to their soil, yet such permanent preferences as those of a *Dianthus* for

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limestone and of *Lithospermum prostratum* for a limeless bed testify to a deeply rooted habit. Recent research upon the Swiss flora has revealed the interesting fact that there are certain parallel types within some of the genera, one type growing naturally on limestone, the other on granite. All such facts are of importance to the cultivator, for most people who have erected a well-planned wall will proceed to the culture of the Alpine.

The following tables, therefore, may be of use in showing the natural proclivities of many species which under right treatment will succeed as perfectly on a dry wall as in the rock garden.

First, some parallel types:—

LIME-LOVING

Primula auricula.
Daphne striata.
Ranunculus alpestris.
Most of the *Dianthus*.

Draba maweana.
Hutchinsia alpina.
Campanula Raineri.
Erica carnea.
Rhododendron hirsutum.
Androsace lanuginosa.
Geranium argenteum.
Saponaria ocymoides.
Silene Elizabethæ.

LIME-HATING

Primula viscosa, *P. glutinosa*.
Daphne Blagayana, *D. Petræa*.
Ranunculus crenatus.
Dianthus glacialis, *D. graniticus*.

Draba frigida, *D. lævigata*.
Hutchinsia brevicaulis.
Campanula Allioni.
Calluna vulgaris.
Rhododendron ferrugineum.
Androsace carnea.
Geranium aconitifolium.
Saponaria lutea.
Silene pumilio, *S. rupestris*.

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The following are dry wall plants which belong to limestone formations :—

Acæna argentea.

Acantholimon venustum, etc.

Achillea argentea, *A. umbellata*, etc.

Æthionema grandiflorum, *Æ. pulchellum*, etc.

The genus *Alyssum*.

The genus *Androsace* (except *A. carnea*).

Anemone baldensis.

Anthemis aizoon.

Artemesia sericea.

Anthyllis montana.

Campanula alpina, *C. pusilla*, *C. Raineri*, *C. Waldsteiniana*,

C. Stansfeldi, *C. Raddeana*.

The *Cerastiums*.

The *Cyclamens*.

Most of the *Dianthus*.

Dryas octopetala.

Draba tomentosa, *D. marveana*, *D. brunæfolia*.

Gentiana Clusii, *G. Farreri*.

Geranium Endressi.

Globularia in variety.

Gnaphalium (*Leontopodium*).

Helicbrysum bellidioides, etc.

Linum salsaloides nanum, *L. flavum*, *L. alpinum*, *L. arboreum*.

Papaver alpinum.

Phlox subulata and hybrids.

Potentilla nitida.

Primula Allionii, *P. farinosa*, *P. Auricula*, *P. marginata*,

P. integrifolia, *P. minima*, *P. Tirolensis*, *P. spectabilis*.

Ranunculus alpestris, *R. montanus*.

Saponaria ocymoides.

Most *Saxifrages* (*S. lilacina* is an exception).

Sedum spathulifolium, *S. brevifolium*, *S. glaucum*, and many others.

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All the *Sempervivums*.

Silene Elizabethæ, *S. acaulis*, *S. alpestris*, *S. Schafta*.

Veronica saxatilis, found on granitic rock, grows well in any gritty soil. So does *V. Allionii*.

It is common knowledge that in nearly every country the limestone species predominate, and there are relatively few cultivated plants for which a soil absolutely lime free is quite essential. The shrubby species that belong to the heather peat form a class by themselves, and will be considered later on in relation to the granite walls of Cornwall or the sandstone of Surrey. In the case of a retaining wall, where both the earth at the back and the actual building stone belong to the countryside, the quality of the soil should be the first consideration, for Heath and *Rhododendron* will flourish on the top in a sandstone or peaty neighbourhood, but would be wholly unsuited to lime or chalk. In either case there is wide scope for selection, as we shall see when we consider the plants in detail.

CHAPTER II

SHRUBBY PLANTS FOR RETAINING WALLS

THE illustration of the wall at Burstead, Clevedon, shown by the kind permission of the owners, is an excellent type of the retaining wall which lends itself to decorative planting. Built of the local freestone, it curves round the drive, and in the spring makes a wonderful display from its many-coloured plants, chiefly *Aubrietia*. A bed of Tea Roses has been planted along the top.

Now this is the kind of wall whose planting should be controlled by reference to local conditions. In heather counties, such as Surrey and some parts of Devon and Hants, nothing could be more beautiful and appropriate than a fringe of the hybrid Heaths, varied by the interesting native shrub *Arctostaphylos Uva-ursi*, one of the *Ericaceae* (the Heath Order), and, like its relatives, evergreen, with small, bell-shaped flowers. It is easy to grow, and flourishes from Westmorland to Cornwall. Where Heath grows naturally, the evergreen *Rhododendrons* also do well. There is

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a charming and very adaptable dwarf, *R. hirsutum*, of the *ferruginum* section, with rose-coloured flowers. This can be grown on limestone if desired: in its natural state it is found at all elevations, from rocky places at eight thousand feet as well as on the shores of Lago Maggiore. It is a small, erect shrub, and suited to a sheltered spot in the garden. *R. fastigiatum*, with lavender flowers, is another good species for the top of a wall which is somewhat shaded, at least for part of the day.

There are a few other small shrubs which thrive in shade and coolness, and are adapted to this form of wall culture, where they can get plenty of room for their roots. Such are the lovely and fragrant *Daphnes* of the Order *Thymelaceæ*. They belong by nature to granitic and sandstone rocks or to peaty districts, and should be planted in special leafy soil. The two most worthy of cultivation, *Daphne Blagayana*, white, and *D. Cneorum*, pink, are small, and should be placed only where they can be seen—and smelt. Our native *D. Mezereum* is taller and more suited for the garden borders. A low wall, partially shaded, is an excellent position for the dwarfs.

Or take a boundary wall that is exposed to

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sunshine but sheltered by the house or trees from cutting winds. Here are some admirable species from one foot to four feet which are hardy (unless otherwise stated) everywhere except in the extreme north of Britain.

An exceedingly hardy and adaptable group comes from the Order *Leguminosæ*, the Pea and Bean tribe. Their flowers vary from purple to yellow and are bounteous and showy. *Genista tinctoria*, the Dyer's Greenweed, has a hybrid, *G. flore-pleno*, which blooms late in the summer. *Cytisus nigricans* flowers in August. Both are bright little yellow-flowered shrubs. *C. purpureus* bears its purple flowers in May and is a very low-growing species. Indeed, the dwarfs of both these closely related genera are indispensable to the cultivator, and their culture in a light soil and sunny position presents no difficulty. The hybrid of *C. Scoparius* (the common Broom), which is the loveliest of the family, is *C. Kewensis*, whose showers of pendant branches are never seen to greater advantage than when the little shrub can ramble over the face of a wall. It blooms as profusely as *C. Ardoinii*, a decumbent form from the Alps and one of its parents, while its flowers are of an exquisite creamy white

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tinted with lemon. No rock or wall garden is complete without this treasure.

For the south and west of England there is plenty of choice among less hardy things which have been imported from warm latitudes and dislike the cold of our English winters. *Fuchsia Riccartoni* is deciduous, but springs up from a woody stock in May. In autumn there is nothing more beautiful than a hedge of this *Fuchsia* gleaming in the sun, and it is a common sight in Somerset and Devon, fringing the top of the big walls between the road and cottage gardens. In similar positions in maritime districts one sees the two Tamarisks, *Tamarix gallica* and *T. germanica*, but these are tall shrubs growing four and five feet high. They are useful where a screen is desired above a low wall between the house and the road. *Santolina chamæcyparissus*, the Cotton Lavender, is often used in the same manner, falling over the wall from the top. It is an aromatic grey-leaved composite, valuable for its evergreen foliage, and extremely hardy in coastal districts. It is well companioned by the equally hardy *Berberis Darwinii*, which is, however, a much taller shrub, or the accommodating New Zealander, *Olearia Haastii*, which has become

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almost a Cinderella of colonial shrubs. Its lavish cream-coloured daisies, thrown out from the dark foliage, make an effective picture in late summer when many other shrubs have passed their prime. It is resistant to frost, but strong winds fray the leaf margins. In sheltered gardens, south or west, its handsome relative, *O. Gummiana*, from Tasmania, may be grown. It is a dwarfed species with larger and whiter flowers, well worth growing.

Another beautiful New Zealander is *Senecio Greyi*, with soft grey leaves, finely ribbed, and large yellow daisies. This, too, is suitable in the south of England for the top of a retaining wall where a screen is required. It is a very neat shrub, and its leaves repay close observation, being clothed with a hairy felt of snowy whiteness, so white, indeed, that a tiny fringe of snow runs along the leaf margin to the point. The daisies are of a ragwort yellow, and their profusion, seen against the foliage, makes the plant a conspicuous one through the flowering season. For a year or two it remains about two feet high, but will ultimately grow to four feet or higher.

Several other rather delicate shrubs may be used with good effect in the south and west where there is a light, sandy loam.



DRY WALLING IN THE ROYAL YORK HOTEL GROUNDS

Photo by Reg. Perkins, F.R.P.S.

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Othonopsis cheirifolia is a composite of the same grey and yellow type as the *Senecio* and *Santolina*. It is called the Barbery Ragwort, and is a picturesque shrub bearing a great company of golden daisies. Then there is *Veronica Hulkeana*, the finest of the New Zealand *Veronicas*, which falls down over a wall like a curtain and bears long panicles of lavender flowers. And finally the "snow in summer" bush should be remembered. It was formerly known as *Ozothamnus rosmarinifolius*, but is now listed as *Helicbrysum rosmarinifolium*. This shrub is a peat lover, so its natural associations are with the Ericaceous group, the Heaths and Rhododendrons. It is a Tasmanian, and bears long sprays of white blossoms from heather-like twigs. A sunny and sheltered site is necessary.

The illustration from the Royal York Hotel, Clevedon, shows an interesting scheme of dry wall gardening which has been introduced by the enterprise of the proprietors into a formerly featureless slope with a south exposure. Both the upper walls form the boundary of gravel walks which curve round the house to the west, and the second wall, which is about five feet deep, is rooted in a good depth of loamy soil. Barring

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an occasional sou'wester and winter fog, the climate is fairly equable, and the beautiful white-flowered, resinous shrub *Cistus ladaniferus* has stood the winter well. In the crevices of all the walls, saxatile species such as *Campanulas*, *Sedums*, and *Saxifrages* are thriving; and when the beauty of the bearded Irises is past, many other perennials will carry on the pageant of the summer. But the real centre of interest from the gardener's point of view is the position afforded by that second wall where it curves round to the west, giving shelter to the plants at its base and a sunny, open space on the top. Wherever a garden is to be wrought out of a piece of ground with unequal levels and a sunny aspect, a wall raised in this manner can be utilized in several ways. It will provide a shelter, if desired, for spreading shrubs or climbers: it can be planted with drooping subjects like *Achillea umbellata*, which will grow over the face; it may be surmounted with dark evergreen Conifers like *Juniperus sabina prostrata*, or with the *Cotoneasters*; or, finally, the top may be reserved for dwarf shrubs such as the *Daphnes* and dwarf Lavender, which would sweeten the air for those who walk and talk on the terrace. Such a scheme of dry walling can be

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adapted to any climate in Great Britain, but in the heather counties the top of the wall might well be reserved entirely for Ericaceous shrublets or the hybrid Heaths which are so varied and valuable that they must have a page to themselves.

Everyone should have a Heath garden of some sort, for no other plants of their size bring so much joy into the dullest season. *Erica carnea* and its hybrids bloom from November into late spring, the hybrid *Vivelli* remaining longest in beauty by reason of its fine, russet-coloured foliage. It is a ground-hugging variety, and well adapted for the fringe of a boundary wall. *Carnea* and its hybrid varieties may even be grown in districts where there is a calcareous sub-soil, though, of course, like the rest of the family they are best adapted to a light, sandy soil with some peat or humus. This splendid old Heath has been mated with *E. mediterranea*, and the beautiful *Darleyensis* is the result. It is taller and more bushy than its parents, and its crimson flowers bring good cheer into the winter months and early spring. These Heaths are entirely hardy. The Cape varieties, on the other hand, can only be recommended for the south and west of England, or for Irish gardens. There, *E. melanthera*

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might be tried, or the scarlet-flowered *E. cerinthoides*. The Tree Heath, *E. arborea*, is a fine, bushy plant for a low wall, and is hardier than many of the Cape species, but it grows to three feet. *E. australis* is smaller, and extremely effective with its rose-red flowers. Then there is the autumn-flowering Cornish Heath, *E. vagans*, with its two hybrids—St. Keverne, whose rose-pink flowers appear in September, and Mrs. D. F. Maxwell, perhaps the most beautiful of all the hardy species. Its spires of deep red blossoms, elongating into pointed tufts, are taller than St. Keverne and carry on the season while the *carnea* group are maturing their winter blooms.

For those who like some white varieties planted with the red there is *E. vulgaris pyramidalis*, a rather tall variety, and *E. pumila*, a pretty dwarf. A fine new hybrid is Mair's variety, syn. *elongata*, with spikes a foot long. A charming cross-leaved type is *E. Tetralix Prægeri*, bearing bright pink blossoms.

One or two more shrubs of the Ericaceous group may be mentioned before leaving this section, because for those whose soil happens to suit them there are so many (other than the Rhododendrons) which should be grown. Among

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them is the Connemara bell heather, *Dabæcia polyfolia*. It is suitable for mild districts; and its pinkish bells, grown like those of *Pieris* and *Andromeda*, in spikes, last into the autumn. *Menziesia empetrifolia* (or *Phyllodoce empetrifolia*) is a very closely related shrub, prostrate and evergreen, with pink, heather-like flowers.

Pernettya mucronata is well known and rightly valued for its accommodating habit as to situation, for it will creep along the ground in the shade of trees. The small bell-flowers are succeeded by fascinating berries, white, pink, or deep red. It is a peat lover like the lovely *Kalmias* which are among the most desirable of dwarf evergreen shrubs. *K. latifolia* is a particularly good species with large pink flowers.

A south-west aspect similar to that on the steepest side of the Royal York Hotel wall would be ideal for the beautiful Himalayan Sage, *Perovskia atriplicifolia*. This delightful shrub is clothed with silvery down, the effect of innumerable soft hairs; and the slender twigs retain this covering all the winter when the leaves are gone. The lavender and violet-tinted flowers resemble those of the Sage (for the plant is one of the *Labiatae*), and it will grow on any good

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cultivated soil. An aromatic fragrance is given out by the glandular hairs, rather like the smell of our own Sage, but of a more resinous quality; an extremely delicate and graceful shrub which is not so well known as it should be.

From the point of view of design it is always effective to clothe the wall at certain points with a downward sweep of some rock sheeting species. For this, the creeping Junipers, which shall be catalogued with other dwarf Conifers on another page, are altogether admirable, but there are other things that can be utilized in the same way, especially with a view to autumnal effects. The *Cotoneasters* at once suggest themselves. *C. horizontalis* is one of the best, retaining its berries through the Christmas season, and it can be trained down over the wall face with good effect. So can the creeping *Gaultheria Veitchiana*, a lime-hating species which has leathery leaves and the heath-like flowers of its family, followed by berries of exceptional beauty, pale blue mottled with darker tints. Or there is *G. trichophylla*, an ideal little mat-forming shrub, much more accommodating as to soil. The top of a wall from which it can ramble downwards in the sunshine suits it perfectly, with a bed of

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good loamy soil. Its little flowers, which are pink, are followed in June by exquisite berries the colour of a hedge-sparrow's egg. These two shrubs are very distinct and well worth growing. The autumn brilliance of the Chinese Vines should be remembered where a long drift of colour is desired and space can be given to a rather invasive species. *Vitis Davidii* is one of the most brilliant and is easily cultivated in all parts of Britain.

Among the Conifers there is now a large variety of pygmy garden forms as well as very handsome taller and rock sheeting species. Even the great Cedar of Lebanon has given rise to a ridiculous Lilliputian resembling the parent in a form under a foot high. The Junipers are the most perfectly adapted to mural planting, for they will take on whatever outline is required, adhering faithfully to the stone over which they travel. *Juniperus horizontalis* is particularly effective, varying in colour from the summer green to an autumn and winter variation in blue and purple. *J. conferta*, from the coastal districts of Japan, rarely changes its light green colour, but *J. communis prostrata* and its other form, *J. tamariscifolia*, form beautiful sweeping masses of a richer

hue. *J. sabina prostrata* is the Savin: its table-like, bushy growth is horizontal rather than creeping, and it is most effective growing in flat masses along the top of a wall. A curious weeping Juniper is *J. recurva*, from the Himalayas, with long, pendulous branches of jade-green.

Then there are the Cypresses in embarrassing variety, and the dwarf Spruce Firs. All these are upright little trees of various forms and colours. An interesting collection can be made for the top of a low wall, while for a higher wall, one of the conical Spruces planted here and there is exceedingly attractive. It must be remembered that the artificial dwarfs which are the result of centuries of pruning, confining, and malnutrition, as carried out by the Japanese, will tend to revert to their natural conditions when planted outdoors in garden soil. For wall decoration, therefore, it is better to deal with the natural dwarfs of the mountain districts, which should be planted in gravelly soil, and will preserve much the same form and outline from year to year. Here are some of the most suitable miniature trees for the purpose:—

A beautiful Cypress is *Cupressus Fletcheri*, which forms a steely blue-green pyramid. A tree four inches high may eventually grow to four feet.

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A smaller tree is *Picea Albertiana conica*, perhaps the prettiest of all dwarf Conifers. It is conical in shape with feathery branches of an exquisite shade of green. Another charming Oriental Spruce is *P. orientalis nana*, a compact little tree of sturdy growth. *Pinus montana Mugbus* is a dwarf Alpine species worthy of inclusion, and so is *Cupressus obtusa juniperoides*, which has a stunted, rounded outline. *Pseudotsuga Douglasi Fletcheriana* is a dwarf among the giant Douglas Firs. It is a picturesque tree of two feet, grey-blue in colour. Finally, there is the remarkable Coffin Juniper, *Juniperus Coxii*, which was brought here by Farrer. Its fine timber is used by the Chinese for the manufacture of coffins. It has weeping branches of delicate beauty, and is of slow growth.

Three of the tiniest Conifers are *Cupressus obtusa tetragona minima*, a diminutive hump two inches high; *Juniperus communis hibernica*, or "Baby Irishman," a miniature spire; and *Picea excelsa nana compacta*, a small variety of our Christmas tree. Any of these are suitable for crevices over a ledge on the face of a wall. They and all their taller relatives have a garden value not to be found elsewhere, and they add a picturesque touch in wall culture just as much as in the rock garden or the trough.

CHAPTER III

ROCK PLANTS FOR THE DRY WALL

It is not, of course, necessary to grow Alpines on a specially constructed wall, for many a simple scheme of plant culture can be beautifully carried out with old garden favourites at little cost and trouble. Such a scheme would have for the early spring, *Arabis*, *Aubrietia*, and *Alyssum*; for May and June, *Lithospermum*, *Saponaria*, and *Iberis*; for summer, the Sun Roses, followed by Pinks and perhaps House Leeks and Stonecrop; and for winter, some of the berry-bearing shrubs like *Cotoneaster*, or, in favourable districts, the Heaths. In any case, some arrangement should be provided for that will follow the natural succession of the seasons with their allotted bounty of bloom.

But Alpine and Asiatic plants, together with their hybrids, are now so widely grown and can be so successfully handled on the background of the dry wall that most people who have the right conditions will elect to grow them. In the following pages, therefore, will be found a

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selection of those foreign plants generally considered the most suitable for English rock gardens, together with some native species of our own.

RANUNCULACEÆ

The Buttercup group, *Ranunculaceæ*, which, botanically, precedes all the rest of the Natural Orders, includes some of the choicest Alpines, such as the *Anemones* and *Aquilegias*, though it is at first sight difficult to believe that these Columbines, "looking up the contrary way," have anything in common with a Buttercup. Their tubular corolla, with its curved, horn-shaped spur, gives the flower its fascination, and when the hooded petals are tinted with an exquisite tone of blue the result is incomparable. Several of the European and American *Aquilegias* will grow in the dry wall. *A. pyrenaica*, a miniature edition of *A. alpina*, grows to about a foot high: its blue flowers nod upon naked stems rising from the usual three ternate leaves of the group. The Siberian *A. glandulosa* is looked upon as the gem of the Columbines; it is blue and white with a lovely bunch of golden stamens inside the bell. It is not an easy species to flower,

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but it does sometimes succeed in a wall pocket of sweet, fresh loam in a rather cool aspect. The latest introduction, called Hensol Harebell, is



Sketch by]

[Miss E. M. Barlow

AQUILEGIA GLANDULOSA

apparently a new form of *alpina*, and is said to equal it in beauty and excel it in constitution. The *Aquilegias* are all short-lived and reproduced by seed.

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From the genus *Ranunculus* we get several good wall plants. *R. alpestris*, four inches high, from the Pyrenees, is a limestone plant and should be placed in a moisture-retaining pocket not in full sun. Its buttercup is white with a cluster of bright yellow stamens. *R. montanus* is another jolly little species with a shining face of gold. *R. amplexicaulis* has large white flowers and polished leaves; and *R. glacialis*, though more difficult to grow than the preceding, is worth a trial, with dark green leaves and white flowers tinted with pink. It grows naturally in damp moraines and is suited for a retaining wall where there is a reserve of moisture and a soil of leaf mould, sand, and loam. All these Buttercups need watering when making growth and flower.

Of the *Anemones*, *A. vernalis* is the most desirable. It is called "the lady of the snows," and its flowers are so arrestingly beautiful that we have perhaps cherished it too much for its own good. It is, after all, not so difficult to grow, though it belongs to a sadly capricious family. The shaded part of a wall will suit it if the roots are given plenty of room in a deep crevice packed with fibrous loam and grit. The flowers are hard to describe, for there are as many tones

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in colour as there are scents, but we have so few words for them. The first sight of this glorious little Alpine recalls the line "clothed in white samite, mystic, wonderful." The sepals are white within, but outside they are gold or blue or pinkish, and the whole gleaming cup is softly pencilled with long, colourless hairs. It should be grown in a sunny place in deep, sandy loam, and always after flowering it needs a top dressing of fresh earth to cover any surface roots that may have formed.

PAPAVERACEÆ

From the Poppy Order we get the enchanting little *Papaver alpinum*. Its dainty flowers vary in tone from white to yellow or even red, and are well thrown up against the stone from the tufts of greyish green, ferny foliage. Its home is on limestone rocks of eight thousand feet, and botanists have detected two sub-species varying as to position. It certainly does well in scree, but it will grow on any sunny pitch in a gritty soil.

Another of the Poppy tribe well accustomed by nature to crevice conditions is *Corydalis bulbosus*, a relative of our own naturalized *C. lutea*,

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a pretty weed for any rocky corner. *C. bulbosus* has the light, dissected leaves and yellow flowers of the genus. Like the Alpine Poppy, it grows best from seed, and should be remembered for a nook on the north side of a wall near the foot.

CRUCIFERÆ

With the Order *Cruciferæ* a flock of hardy cresses comes flying to one's mind. A wall might be covered with them without more ado. Never are *Aubrietias* seen to such advantage as when sheeting the face of a rock, and a wall gives them the chance of their lives. One has but to choose the colours to one's liking, to insert young plants in deep crevices while the wall is being made, and then to take care that no choice Alpines are placed anywhere near the spot. *Aubrietias* are really most suited to a retaining wall where they can grow without restraint. They grow in any soil, and should be cut back after flowering to give the best results. The new pink *Gloriosa* with the white eye is a pretty hybrid of *A. deltoidea*, and *Vindictive* is a very showy purplish red.

The *Allysums* and *Arabis* are equally at home in dry wall conditions, and a selection among the

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less common kinds can profitably be made. *Alyssum saxatile citrinum* is gentler in tone than the ordinary yellow, and there are also one or two European species worth trying, especially as they have the grey foliage so valuable as a contrast. The two best are *A. argenteum*, a compact, shrubby species, and *A. montanum*, a still smaller tuft.

The *Drabas* are, of course, by nature wall plants, and so is *Cardamine trifolia*, though generally seen in the rock garden. The best wall *Draba*, *D.* (or *Petrocallis*) *pyrenaica* forms tiny tufts with a profusion of rosy lilac blossoms in spring. It requires a very gritty soil and sunny positions. Other *Drabas* and some *Arabis* species will be mentioned later in the crazy paving lists.

Cardamine trifolia is a pretty plant from Central Europe. The ternate leaves are shiny and the flowers white inclining to pink. Its root stock is creeping, and it does best in shade.

Another handsome evergreen Crucifer is the Candytuft, *Iberis sempervivum*, a popular plant for edgings as well as for walls. It increases quickly and is easily grown. On a wall surface it displays a brilliant effect of white and darkest green, and its hardy constitution recommends it for the



A RETAINING WALL WITH DRIFTS OF AUBRIETIA, ETC.
AT BURSTEAD, CLEVEDON

Photo by Reg. Perkins, F.R.P.S.

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roughest places. *I. gibraltica* is equally hardy with flowers of the palest lilac, yet they, too, have the shining brilliance of the white Candytuft in the mass. The colour seems to vary with the position, and is a little more pronounced in a very dry aspect.

The Lebanon Candytufts are the *Æthionemas* which include some of the loveliest of dwarf shrubs. The dry wall suits *Æ. saxatile*, *Æ. grandiflorum*, and the favourite *Æ. pulchellum*, hybrid Warley Rose. All are beautiful, with their trim little heads of glowing colour, rose or pink. In *Æ. grandiflorum*, the heads are paler in colour and more elongated than in the Warley type which is also neater in growth. These two species are excellent companions and should be grown together for the sake of contrast. They are sun-lovers and lime-lovers, and their fibrous root system needs a deep pocket of soil, for they make a wiry and extensive growth. They are moderately hardy, winter fog being perhaps their chief enemy; but the stock can easily be kept by means of cuttings taken in summer and raised in a cold frame.

Two other cresses are by nature adapted for wall cavities. One is the sweet-scented little stock, *Matthiola varia*, var. *pedemontana*. Its tufted

leaves are greyish from a mat of hairs, and its flowers are purple. Fragrance is not common among Alpines, and this Italian Crucifer is worth a place on the wall, where its scent greets the passer-by towards evening. It can stand any amount of heat, and settles comfortably into the driest crevice. *M. valesiaca* is another fragrant alpine stock suitable for similar conditions. Finally there are the Wallflowers. Our beloved native, *Cheiranthus Cheiri*, is the parent of innumerable hybrid forms, of which perhaps the handsomest and the most suitable to wall conditions is the old double Scotch variety, Harpur Crewe. Yet there are others that have become rarities because they have dropped out of cultivation, as good things often do. The double red should be remembered in this connection. *C. rossii* has purple-red blossoms, and flowers longer than any other kind, except perhaps the Siberian *C. Allioni*, so popular now in bedding. *C. alpinus* is properly *Erysimum*, a dwarf, compact form with flowers of a paler yellow than Harpur Crewe. No wall is complete without some of these glorious crucifers, and they are raised from seed so easily that they are among the very best species to work into a masonry wall.

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CISTACEÆ

The *Cistaceæ* include the familiar Sun Roses of our rock gardens which are entirely beautiful, displaying their abundance on a sunny wall. They have a tough and vigorous root system which must be remembered in planting, for when once established it becomes almost impossible to dislodge them from the stones. Their wiry tufts make gorgeous sheets of colour when blooming from the top of a wall, but neither here nor on a rockery should they be planted near smaller and weaker things. Besides the innumerable hybrids of *Helianthemum vulgare*, there are one or two European species worth considering. One especially, *H. ocymoides*, varies from our native in having silvery leaves. The flowers are yellow with a brown blotch, recalling those of many of the *Cistus*. In fact, some growers call this plant *Cistus algarvense*. It is smaller and less sprawling than *Helianthemum vulgare*. Another compact little shrub is *H. piloselloides*, the name implying that its foliage is hairy with a soft grey effect in the bush. It has the typical Sun Rose blossoms of a clear yellow. These two shrublets are fitted for a place lower down the face of a wall, but they must all have sunshine.

Otherwise they are hardy in every part of Britain. They should be cut back after flowering to encourage a little second bloom.

CARYOPHYLLACEÆ

And here we come to the Pinks, the most typical and lovable plants of a limestone rock flora, the "pinks of perfection," distributed all over the world, from the water-worn rocks of Cheddar to the granite and limestone slopes of European mountains seven thousand feet high. Distinct as they are as a genus, yet there are wonderful variations in their foliage, from the blue-green tint given by the waxy epidermis that veils the brilliant chlorophyll of the interior cells, to the bronze colouring of *Dianthus cruentus* and the Sweet Williams. In habit, too, they differ, some sprawling about on floppy stems like the Ragged Robins, and others forming the most compact and shapely tufts that increase but slowly. *D. cæsius*, the Mountain Pink, is well known on the cliffs of Cheddar, and *D. deltoides*, the Maiden Pink, is also found, though sparingly, in Britain. *D. caryophyllus*, parent of the Gilly Flower or Carnation, is a naturalized plant where it occurs mainly on old walls. In every species there are

now numerous hybrids, one of the most popular developments in modern horticulture being the rockery hybrid, *Allwoodii Alpinus*, the result of a cross between such forms as *D. casius*, *D. alpinus*, and *D. plumarius* with the perpetual-flowering Carnation originally brought out by Messrs. Allwood.

In dry wall gardening, therefore, we can draw widely from many stocks, all of which are by nature adapted to this environment. The only question that remains is how to grow them to the best advantage, seeing that many species come from the Alpine or Asiatic mountains, and, further, how to place them so that they may best be observed and loved.

One has to consider one's wall both from close quarters and from a distance, and in either case it is the sky-line that arrests one's attention. Here, I think, it will be generally agreed that nothing is more beautiful than a fringe of Pinks planted at least for a few yards along the top level. Their spears and chalices appear at a new angle as one stands beneath, just as no one knows his Ash tree till he has seen its canopy from below against the sky. From a distance, too, the flowers, flopping down with their grassy

foliage, are a dazzling sight. Some grow Carnations in this way, and there is no doubt that the *Allwoodii* especially are well adapted as a fringe to a wall that is four to five feet high. They are sun-lovers, and should never be wasted on a shaded, retaining wall, but always reserved for a good position on a limestone base.

Next to the *Allwoodii* group, *D. sylvestris* and *D. semperflorens* are to be recommended. Both are tall with grassy foliage, the former with pink flowers, and the latter, which has a long though not continual blooming season, is a particularly fine, fragrant variety with pink petals and red throat. Of the dark crimson, cluster-headed types, *D. cruentus* is one of the best, but sometimes it flowers itself to death in its first season, a defect shared by the exquisite little hybrid Spark. (This may perhaps occur when the plants are grown in too rich a soil.)

Of other hybrids there are plenty. *Donizetti* is one of the best of the taller group, crimson with darker ring; very effective when allowed to hang over a stone or rock.

Highland Queen is another tall, crimson hybrid, and the old Painted Lady—or, as it was

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probably first christened, Dainty Lady—is a fine Carnation with flowers a foot high, in colour rose and cream.

No one with a really good wall will want to stop at a fringe of the taller species, for there are so many delicious pygmies generally grown in the rock garden or moraine, but which will succeed as well in a wall face. For their reception a loamy soil should be prepared with some mortar rubble on the sunny side.

Among the loveliest are *D. neglectus* and *D. squarrosus*. The former has not too good a reputation in some gardens, where it becomes “miffy,” refusing to bloom. But it seems to be so generally successful in a sink or a moraine that probably a good pocket of suitable soil in a wall will flower it to perfection. Pinks are not great rooters, nor do they increase as rapidly as many Alpines. *D. neglectus* is a very lovely dwarf, the pink flowers showing buff on the outside, and the petals delicately fringed. There should be a large proportion of limestone grit in its pocket, nor should it be too closely confined in a crevice, for in a few years it may begin to spread. A mat of this delightful Pink, with its brilliant rose blossoms on the cool grey stone,

is a sight to remember. It is a good plan to plant *Dianthus* upon one of the ledges of the wall face. *Deltoides* in this position hangs down in the manner of an *Aubrietia*, and the smaller forms like *neglectus* display their grassy tufts in perfection upon the slight support. This species seems to vary in a curious way. The true plant should have a slight stain of darker colour at the throat, forming an eye. Its height is about three inches.

Dianthus squarrosus grows in similar tufts, but its flowers are more deeply fringed and of a clear shining white. To see it to perfection it should have a background of stone or foliage. A well-behaved and charming little member of its clan. *D. deltoides*, the Maiden Pink, has a somewhat damaged reputation on account of its rather harsh colour and a habit of shutting under a cloudy sky. But the colour, at least, has been altered by horticulture, and Bowles' variety has handsome crimson flowers, while Brilliant has a richer tone of rose than the type. All the hybrids preserve the carpeting habit of growth, but two—*superbus* and Major Sterne's variety—have changed the bright green leaf to bronze. Also they are taller in the stem. When

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all is said and done, the hybrids of *deltoides* are jolly little Pinks and easy to cultivate. *D. Griesbachii* only varies from the preceding species in that it is dwarfer, and its pink blossoms are spotted with white. *D. arenarius* is a neat little native of Eastern Europe, its fragrant flowers deeply fringed, white, ringed with carmine. Another brilliant Pink is *D. graniticus*, which, like *D. glacialis* from the Eastern Alps, is a lime-hater. Both species should be planted in sandy loam free from lime. *D. cæsius*, the Cheddar Pink, is fragrant, though not so markedly so as *D. squarrosus*. There is now a double form of this dear old Pink; surely a doubtful innovation, for doubling in Pinks often means a split calyx, and that reminds one of "something come undone," with a disreputable human suggestion of blowsiness. The true Pink is the neatest of mountain flowers, and even the Ragged Robins never lose their graceful calyx line. By the way, there is a flamboyant Ragged Robin from the granitic Alps in *D. superbus*. The colour varies from pink to lilac, and the plant is not too reliable in constitution, but it is very pretty hanging down a wall. *D. alpinus* is again a lime-lover, and a delightful species from the Car-

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pathians. Its large, solitary flowers are pink freckled with crimson. It should have a place where a ledge will screen it from the noonday sun, and a compost of good fibrous loam, grit, and leaf mould with a top dressing given every



DIANTHUS ALPINUS

year. All these Pinks are propagated by pipings, shoots cut off at a joint and raised in sandy soil.

The nearly related *Silenes* or Campions, often grown in the moraine, will also succeed in a limestone wall. One of the family has the advantage of preferring shade to sunshine, so it can be placed on the shady side. This is *Silene alpestris*, a pretty little cushion of glossy leaves with starry white flowers lightly fringed—a charming and accommodating Alpine for ordinary soil.

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S. Shافتa and *S. Elizabethæ* are always features at the shows, and have this advantage, that they both flower in late summer, especially the former, which is often seen lingering in bloom in October. It is an easy plant of four inches, profuse in its flowers, which are rather large and deeply cleft. The colour of most of these *Silenes* is a blend of our own Rose Campion and the old-fashioned magenta of Victorian bonnet-strings. This magenta is still beloved by some modern plantsmen, while others detest it and find it difficult of accord with other plants. There is no doubt, however, that it is showy, and *S. Shافتa* should have a place on any wall, partially shaded or sunny. *S. Elizabethæ* has immense flowers for its size, cleft in the Ragged Robin style—a beautiful Alpine for a stony bed in limestone rockwork. The glory of the family is *S. Hookeri*, a Californian of rare and arresting beauty—no magenta in its large blossoms of pure rose pink. The whole tuft is beautiful, with prostrate dark green leaves. The plant needs sunshine and a hot scree. Whether it will succeed in wall culture I cannot at present say, but as its chief enemy is surface moisture, it seems probable. Like *S. Elizabethæ*, it seems to want a deep

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root run, for it makes a mat of roots in one season.

One or two of the carpeting plants presently to be mentioned for paved walks are equally adapted to wall gardening. Among them *Arenaria montana* comes first to mind. It is an easy trailer over stone or brick. The "snow in summer," *Cerastium*, is, of course, the refuge of all who only desire to get some stonework covered as quickly and decently as possible, while the neater species, *C. Biebersteinii*, will also clothe any rough place in sun or shade. It has the same velvety whiteness of leaf and flower as *C. tomentosum*.

The *Gypsophilas*, *repens* and *cerastioides*, are extremely pretty for wall or rockwork, and will adapt themselves to any position and soil. The pink form of *repens* is a charming trailer.

So, too, is *Tunica saxifraga*, with masses of thread-like stems and small pink blossoms. It seems to bloom most freely when given starvation diet in a crevice. Seeds of this plant can be sown in a masonry wall.

LINACEÆ

Every Flax is a joy, and all gardeners rejoice in the fleeting beauty of the blue Flaxes in the

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garden border. But the yellow species are as incomparable in their way, and there is no reason why the splendid *Linum arboreum* from Crete should not succeed in full sunshine in a well-worked crevice. The colour of this lovely Flax has a rare quality of clearness and purity of tone. It should be grown near the top of the wall, where it can branch out without interference. In the winter both this species and *L. flavum* die down. *L. salsaloides* is a wonderful Alpine trailer which could be more commonly grown. It comes from the Maritime Alps, and has a close, mat formation of heather-like leaves. In summer the tufts are completely hidden by pearly white flowers with delicately pencilled veins. This treasure needs the sunny side of a rock or wall face, and a light, sandy soil. When established it will creep down over the stone or spill its treasure lavishly along the ledges.

HYPERICACEÆ

The St. John's Worts give us many exquisite rock garden varieties about which one can easily become lyrical in praise. The colour of the St. John's Wort, the shining gold, is dependent upon the texture of its petals, which is like the

sheen of a perfect silk. Silken, too, are the bunches of stamens united at their base into a tassel, each tipped with glowing crimson in the larger forms, like *Hypericum moserianum*, when the flower first unfolds. This shining yet delicate gold retains its sheen after sunset when colour is so often changed. Therefore, in planting St. John's Wort we are planting for the evening as well as for noon, and when we find a species suited to the wall we are bringing a plant of excellent beauty to the level of the eye. It will always have a greeting for us when we stroll along our wall at morning or at night.

The two trailing species are *H. repens*, with short, heathery branches, and *H. reptans*. In the latter species the foliage is bluish green, and the large, golden chalices that rest upon the mats remain when the petals fall. These are tinted with crimson. The buds also are as crimson-tipped as those of the pretty native species called "Baldur's Blood." Both plants are very small, yet both are brilliant in colouring. They should have a place on an upper course, where *H. repens* will hang down from a crevice. *H. coris*, a typical St. John's Wort of the upright section, is a little larger. It sparkles with sunny flowers in July. The

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taller, upright forms, like the handsome *H. polypyllum* and *H. Olympicum*, grow in large tufts and are, I think, only seen to advantage on the ground.

GERANIANACEÆ

Who does not know the pretty, dissected leaves of the Herb Robert spreading, all green and crimson, on the top of a crumbling wall? And once I knew a Cranesbill that lighted upon the same place, though it probably repented, for these large Cranesbills—it was *Geranium sanguinem*—take a lot of room to spread in. Most of them, therefore, are border or rock plants in the garden; yet the wall habit clearly obtains among them, and in the case of some of the Alpines can easily be induced. The tiny Pyrenean, *G. argenteum*, silver leaved and blushing pink, is one of the prettiest in a crevice and asks only a very gritty pocket with limestone chippings on a warm wall. *G. cinereum* is rather larger, but equally good. For connoisseurs there is the still rare *G. napuligerum*, found by Farrer on his Yunnan expedition. Its lovely pink blossoms have stamens of the richest purple, and the leaves are beautifully veined.

Of the Pyrenean *Erodiums* there are several which are perfectly hardy in a light soil and a sunny spot. The tiny *E. chamædryæides* carries its habit of flowering nearly all the year into any crevice just as it does in the moraine. Its extremely delicate, pink flowers show the darker veins which are typical of its race and particularly of its sister, *E. corsicum*, which is further distinguished by the silky down on the crinkled leaves. Both are equally hardy. The choicest *Erodium* for a crevice is *E. chrysanthemum*, in which all the points of the family are emphasized: the leaves are of a soft, velvety texture, flecked with silver, and the yellow flowers are in sprays.

OXALIDACEÆ

The *Oxalidaceæ* are the Wood Sorrels. On the east or south side of a well-built wall with deep earth pockets it is possible to grow one of the daintiest of the Wood Sorrels that have come to us from South America or the Falkland Islands. It is *Oxalis enneaphylla*, a prostrate little plant like our own native, but with silvery leaves and large, delicate flowers of pale rose. Normally it grows in peaty deposits, and a special pocket

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should be prepared for it with plenty of leaf mould. It should have a sheltered place, preferably under a shelf of stone, where it would get some morning or late afternoon sunshine, but it must not be allowed to dry out. The dwarf *O. adenophylla* requires similar conditions. It is another exquisite species, with soft pink flowers and



OXALIS ADENOPHYLLA

remarkable leaves with segments fluted from the centre like little round fans. These Sorrels can be beautifully grown in the shelter of a cave-like crevice, where their fleeting loveliness has the background of cool grey stone.

LEGUMINOSEÆ

Several of the Pea and Bean group will consent to a place on a sunny wall; indeed, some of them are specialized for hot, dry pitches.

Orobus vernus, one of the Vetches, is not one of these, but it has this particular value : that it begins to flower quite early in the year, covering its small, low bushes with purple flowers. A place on a west wall has been found to suit it. The nearly related *Ononis natrix*, a Rest Harrow from Southern Europe, is a plant of hot banks and waste places, entirely suited for a spot on a sunny wall. It is a plant of the limestone. It flowers abundantly with pink blossoms much like our own native, but its branches have no thorns.

A very odd little bush, seldom grown, but more suited for a dry wall than for any other position, is *Erinacea pungens*. The mauve pea flowers are produced without leaves on spiny branches. Quite worth a trial on the top of a wall in gravelly soil.

The pretty *Coronillas* are well known among flowering shrubs in gardens. *C. iberica* is a trailing species. Its flowers, much like those of the Yellow Broom, are large and numerous, and it succeeds well on a retaining wall where there is plenty of sunshine.

Among smaller plants of the Order we have the Vetch called Lady's Fingers in the west of England where it is extremely rarely found. It is the

Kidney Vetch, *Anthyllis vulnerata*, var. *Dillenii*. This curious variation from the type has red flowers instead of yellow. It can be obtained from horticulturists, and is a delightful Vetch for a wall. *Anthyllis montana* is the most commonly grown: it comes from the Southern Alps, and has woolly leaves and heads of dark red flowers. A striking plant for July, with a faint sweet fragrance. It is accustomed to hot, dry spots on limestone. The large genus *Oxotropis* is not much represented in our gardens or catalogues, but *O. pyrenaica* is often grown between stones in the rock garden, and is a pretty little trefoil-like plant with heads of purplish blue flowers and the usual pinnate leaves in pairs on a creeping stem. It should grow in sandy loam and in sunshine.

Another humble clover-leaved species is *Parochætus communis*, a rather unusual little member of the great leguminous family, for its leaves are those of a trefoil, but the blossoms are solitary and well stalked. The colour is a blue unique in the Order; the tint is not the heavenly blue of a Boragewort, but is more like the prussian blue of our paint-boxes. The flowers are individually rather small so that the plant is never showy like

a *Lithospermum*, but its elegance and uniqueness should win a place for it on a ledge of stone. It seems to have no preferences as to soil, and it will spread itself in moderation upon any rocky basis so long as its head is in the sun and its roots are not starved. The flowers last from late summer into the autumn, or even into the winter in a sheltered place.

ROSACEÆ

The Rose Order naturally recalls us to the low stone balustrades over which pink and yellow climbing roses fall in bounteous profusion. A pink rose never looks so beautiful as when it is associated with grey stone. But there are two groups of the *Rosaceæ* from which several of our prettiest wall and rock species are derived: they are the *Potentillas* and the *Geums*. The former group is divided into shrubby and dwarf species. From the first we get *Potentilla fruticosa* and all its hybrids, small yellow-flowered shrubs with the characteristic segmented leaves. One of them, however, is a ground-hugging variety with charming, silvery leaves of the type of our native Silver Weed: its name is *P. fruticosa nana argentea*, and it is quite suitable for the top of

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a wall. Of the small species, *P. nitida*, from the limestone rocks of the Tyrol, Piedmont, etc., is the gem of its tribe. The little greyish shoots are clothed with unusually long hairs, and the soft pink flowers are thus delicately contrasted with the foliage. It is not a difficult plant for a trough or moraine, where the leaves can be protected from winter fogs, and I believe that it could be suitably housed in a wall pocket with a bed of stony soil. When happily established, its flowers grow large and deeper in colour, and the plant forms wide if somewhat straggling tufts.

Potentilla grandiflora is another species worth growing. The leaves are trifoliate, and woolly underneath, the stems covered with long hair. The flowers are of the same clear yellow as in our native species. *P. aurea* is a plant of the same type and habit, with smaller yellow flowers. All three species are lime-lovers, easily increased by division, and could be more generally grown than they are.

Of the *Geums*, *G. montanum* was described by Farrer as the finest of the group, and it makes a fine splash of colour on a rocky base. It comes from pastures and rocky places of the Alps and

is easily cultivated. From a compact tuft of crinkled leaves the large, deep yellow flowers are borne on very short stems so that they shine out conspicuously, and are, moreover, succeeded by pretty fruits. *G. reptans* is a cheerful little relative which runs about like a wild strawberry and has large yellow flowers. It blooms later than *G. montanum*. Both plants should have a top dressing of new soil after flowering.

The first sight of *Dryas octopetala* in the northern woods has made some enthusiasts inclined to "give a shout and fall prone," like Farrer with his *Eritrichium* or Linnæus with his gorse. The white flowers sit like small water lilies upon their dark, serrated foliage, forming a wide cup for a goodly company of stamens. The whole plant is so tight and prostrate that it scarcely shivers in a wind, and the cups grow out of their calyxes with a mathematical precision, sepal and petal alternating in a line that suggests fine stitching. *Dryas* comes from high places in the British Isles, also from Scandinavia and the New World. With a light soil and some limestone chippings, it increases by trailing shoots, but it must have plenty of root room and some shade. No rock garden or wall is complete without it.



SAXIFRAGA GRIESBACHII

Photo by R. Malby, F.R.P.S.

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SAXIFRAGACEÆ

Who may tell all the wonders of this genus, seeing how many have united in the chorus of their praise? They are emphatically rock and wall plants, highly specialized for stony places and for altitudes in pure, clear air. Their solid, resistant leaves testify to their enduring nature, but in our climate, unless well guarded by protecting ledges and raised above the ground level, they succumb to moisture above and damp below. In the rock garden they are sometimes very shy of blooming unless their needs are supplied. It follows that a wall suits them to perfection.

Like the *Sempervivums*, the Saxifrages are a prodigious family with divisions that are confusing to the cultivator; but for this chapter, at least, one division may be disregarded, since the Mossy Saxifrages which are delightful for the rock garden, for the corners of steps, and occasionally for chinks in a paving, are not well adapted to walls.

The saxatile groups blossom from February to July, and are generally at their brightest in early summer, but many of the encrusted varieties are so interesting and conspicuous while out of

flower that all the year through they are objects of beauty.

The earliest to bloom are the Kabschia group; small, tufted Alpines of very dwarf habit whose close, dense hummocks are more or less sprinkled with a characteristic "silver" deposit of lime along the leaf margins.

Saxifraga burseriana (the type) is dense and spiny, bearing in early spring white flowers, rounded and conspicuous, upon pinkish stems. One of the best white hybrids is *Gloria*, and the best yellow, *sulphurea*, raised by Captain Simpsom Hayward. The Kabschias increase rather slowly, but should have a crevice sufficiently deep to permit of their spreading. They do not need a south exposure: a wall facing east or west will suit them. The best compost is made of two-thirds calcareous loam, with leaf mould, sand, and a quantity of stone chippings to keep the soil open.

The following are all beautiful hybrids of the Kabschia class:—

Saxifraga Fernandi-Coburgi, yellow; *S. sancta*, orange-yellow; *S. Elizabethæ* (hybrid from *sancta* and *burseriana*), yellow flowers on red stems; Faldonside (from *burseriana* and *aretoides*), another

fine yellow; and *Kelleri* (from *burseriana* and *Stribryni*), pink flowers on three-inch stems. They all flower early in the year.

The *Engleria* and *Aizoon* groups give us the taller and larger species. They are the encrusted section, and make a wonderful display in June. Typically, they form rosettes of thick, tongue-shaped leaves which have sharp teeth covered with an encrustation of lime. The stem leaves are small and pass into bracts. The flowers are borne in loose sprays, sometimes on arching stems two or three feet long. As a rule, they live on the limestone rocks of the Alps, Carpathians, and Pyrenees, but *S. Cotyledon* is an exception, growing on granite. This fine species has given rise to a glorious hybrid, *Caterhamensis*, with long sprays of white flowers speckled with red spots. *S. aizoon* is the type of these encrusted species; it is extremely variable, but one of the easiest to grow, for it can be placed in sun or shade, on limestone rock or granite. *Aizoon Rex*, with stems of a brick-red and white flowers, is perhaps the finest hybrid. There is also *flavescens* with flowers of pale yellow. *S. lingulata* and its nearly related, or, as some consider, its variety, *lantoscana* are the handsomest of all this magnificent group.

Lingulata comes from the limestone Alps where it is only local. Its flowers are milk-white, borne in long, unilateral branches, so that they have a plume-like effect. No one who has seen this plant, with its large silvered rosette lying flat upon the stones and throwing up sprawling plumes of feathery blossoms, could ever forget it. Nor would it ever again be possible to grow an inferior species. "We needs must love the highest when we see it; not *crustata* nor another."

Saxifraga lantosca (Boiss et Reut) was named from the limestone districts round St. Martin Lantosque in the Maritime Alps, but its affinities have been the subject of much discussion in the *Gardeners' Chronicle*. It can be supplied by most horticultural firms, and should be firmly planted in the upper course of a wall, east or west, where its beauty can be seen and enjoyed. This and the following species are suitable for planting on the flat face of a perpendicular rock or wall, where the great rosettes can spread out horizontally. These rosettes may not reach the flowering stage for a year or two.

Saxifraga longifolia comes from the Pyrenees, and its rosette with its pointed leaves bearing encrusted pores at the margins and of a bluish

green tint are in themselves so beautiful that the plant may be grown for them alone. One rosette may grow to forty inches or more in circumference. When at last it throws up its flowering spike, of pyramidal form and bearing a lavish company of flowers, the rosette perishes. Seed, however, is freely sown. There is now a hybrid of startling beauty, called *Tumbling Waters*, with even longer panicles than the type. *Longifolia*, like *lingulata*, should be planted between two blocks of limestone in the vertical position so that no water may ever collect round the leaves.

The above are, of course, but a few selected species of this immense family, which has now a literature of its own, such as the books by Messrs. William Robinson, Reginald Farrer, and W. A. Clark.

CRASSULACEÆ

The House Leeks, Stonecrops, and Cotyledons all belong to this group of brilliant and interesting succulents. The Wall Cotyledon is well known to English botanists, with its round, fleshy leaves protruding from cracks in a wall, and its fat stems pressed to the face. The foreign species differ in many ways: several are adapted to wall

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culture, but the most distinguished is *Cotyledon oppositifolia* (syn. *simplicifolia*), one of the most showy and individual of May-flowering plants, with long yellow flower chains dangling over fleshy rosettes. It requires some constant moisture in the flowering season, and, personally, I find it happier out of the noonday sun.

The affinity of the House Leek for its roof-top is familiar to us all. The rosette has not the embossed magnificence of the Saxifrage, but it can be enlisted for positions that its lordlier relatives would despise. This is a most serviceable group for wall gardening. Any old crumbling masonry wall can be cheered up by a clump or two of *Sempervivum*. A piece of moist clay or calcareous loam can be laid between the bricks or stones, and the young House Leeks attached to it. If this "mud pudding" be kept damp for a few days, the plants will soon make themselves at home. Once established in the most inhospitable places they form great clumps which are readily divided. The propagation of the House Leek by its runners is always a fascinating spectacle. No wall top can be too hot or exposed for a well-established colony.

The genus is a vast one, and has, until the

publication of Dr. Lloyd Præger's monograph, remained in hopeless confusion. Even now, it is not always easy or even practicable to secure a species true to name. Mr. Ingwersen has, however, given a good guide in his new catalogue to the better-known kinds and numerous hybrids which await our choice. One of the best is *Sempervivum fimbriatum* from the Tyrol. The rosettes have long, soft hairs at their margins, an arrangement which recalls the hair points of some of the wall-frequenting mosses. In the Leek, however, this arrangement is intensified until it often looks like a spider's web. (The familiar *S. arachnoideum* has, of course, received its name from this soft and beautiful webbing of the young rosettes.) The flowers of *S. fimbriatum* are borne on stems nine inches high, and are of a charming rose tint. From the Balkans we get the handsome *S. Schlehanii* with its hybrid *brunniaefolium*, in which the imbricated leaves are red tipped with green. *S. Pittoni*, *S. grandiflorum*, and *S. leucanthum* have yellow flowers. *S. arachnoideum tomentosum* is more woolly than the type.

The spider's web in both the species and its hybrid is formed by the glandular hairs on the leaves associated with other hairs of a radiating

form, the whole mass weaving the points of the leaves together. The little cobwebby offsets from the parent rosettes are extremely pretty and interesting. The flowers are red. *S. dolomiticum* is a rare species, but one of the most beautiful, with large, widely expanded flowers of dark crimson.

Sempervivum triste is only of garden origin, but very distinct by the red tint of its rosettes and stem-leaved. It increases rapidly.

As to the *Sedums* (the Stonecrops), they are associated all over the world with deserts and arid regions: many abound in South Africa. They, too, are very easy to grow, and increase very quickly. Their use in wall culture is obvious; and though the group includes some rather uninteresting species, there are many which can transform a sunny wall-top in a back garden into a spot of radiance.

Sedum pilosum, with pink flowers, is biennial, but easily increases from its rosettes. *S. brevifolium*, the Mealy Stonecrop, has whitish flowers and curious silvery little leaves which are its chief beauty. It has now a pretty pink-flowered hybrid, *Pottsi*. *S. obsusatum* is bright green in summer and red in winter; it comes from California. *S. acre*

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is the little common native of country walls, and *S. murale* is a bright and easy Stonecrop with



Sketch by]

[Miss E. M. Barlow

SEDUM SPURIUM SPLENDENS

deep golden flowers, and leaves which turn crimson as the plant matures.

But brilliant as all the yellow-flowered Stonecrops are, and grateful as all lovers of the road must be for their happy stretches of colour,

I think some of the red-flowering species are even more attractive on a garden wall. In this connection *S. spurium splendens* is worth mentioning a second time, for it hangs down as easily as it ramps. This Stonecrop and *S. stoloniferum* will spread over any bare place in a short time, and their red blossoms and leafy stems make a handsome fringe in any simple scheme of mural decoration. The neat, pink-flowered *S. sieboldii*, with steel-blue leaves, is also charming.

Sedum Kamschaticum variegatum is a very good yellow-flowered species from Northern Asia. It should be planted in a conspicuous place for its autumn as well as summer beauty. The flower heads are large and full, and when September brings the fruiting time, the calyxes begin—generally in the middle of the cluster—to turn a brilliant red. Later, the leaves, too, become crimson. The plant is rather tall and the flower stems erect. Altogether a memorable species.

Sedum origanum is a more prostrate little Stonecrop with short stems covered with fat little roundish leaves which assume an autumn dress when the plant grows in poor soil. The heads of yellow flowers are very showy.

Sedum altissimum is the largest of this group,

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growing nearly a foot high. It is a handsome plant, with large leaves and stout flower stems. The buds are orange, but change to yellow as the flower expands. All these *Sedums* make a splendid patch of colour that lasts well into the autumn, and they should have a place on every wall.

ONAGRACEÆ

The *Oenotheras* and *Zauschneria* are not Alpines, for they come from Chile or Mexico, but it is quite possible to grow them as hardy plants in sunny positions over here. No rock garden facing south and sheltered in winter and no wall similarly placed are complete without the flaming *Zauschneria californica*, var. *mexicana*. Its scarlet flowers, "humming birds' trumpets," are pendant like a *Fuchsia*, and are often a blaze of colour in October when colour is spent. The beautiful bush never looks better than when placed high up on a wall, where its pendant branches can be seen against the stone. It is not particular as to soil, but must have sunshine.

The *Oenotheras*, the Evening Primroses, have suffered in the gardener's estimation from their lax and dissipated look in a border owing to

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their melancholy habit of keeping their dead flowers twisted on the stalk. This matters less in the beautiful prostrate forms, which are a



Sketch by]

[Miss E. M. Barlow

ZAUSCHNERIA CALIFORNICA

revelation to those who have only known the borderers. *Æ. pumila* and *Æ. cæspitosa* are both worth growing, the former a miniature Evening

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Primrose and the latter a four-inch pygmy with huge fragrant flowers of white. A larger species, and one that I greatly love, is *Æ. missouriensis*, which ramps delightfully on the top of a wall. It likes sunshine, but is very hardy, and its great cup-shaped flowers have the pure lemon tint that is so rare and so lovely among Nature's yellows. The dwarf *Æ. mexicana rosea* is one of the most delightful of the smaller species. It is prostrate with flowers of a rich rose tint. Most of the *Ænotheras* are scentless, but *Æ. cæspitosa* is an exception, for it has a delicate fragrance which is the better realized when it is seen and smelled in a pocket of a wall. If anyone is in search of a perfect contrast, let them experiment with *Æ. missouriensis* planted near the blue *Convolvulus mauritanicus*. The two together make one of the most gladdening pictures that can meet the eye.

Another very pretty Evening Primrose for a wall pocket is *Ænothera riparia*, with loosely trailing branches and golden flowers. All these species do well in a loamy soil, east or west.

VALERIANACEÆ

Everyone knows the wall-frequenting wild

Valerian whose botanical name is not *Valeriana* but *Centranthus*. The great value of this indomitable plant lies in its indifference to soil, and it will grow happily upon any wall, preferably towards the top, where it can spread unrestrained. The best garden form is *C. ruber coccineus*, a very handsome plant with brilliant colouring.

Botanically the next Order is that of the *Compositæ*, but its genera are so numerous and include so many species for wall cultivation that its place is properly at the beginning rather than at the end of a chapter.

CHAPTER IV

ROCK PLANTS FOR THE DRY WALL —continued

COMPOSITÆ

The Composites give us several of those small white-leaved plants with yellow daisies that are as useful in the way of contrast as the silvery foliaged shrubs of the same Order. Most of them come from the mountains and mountain valleys of Europe, and mainly from three genera—*Anthemis*, *Artemesia*, and *Achillea*. From each group we can select one or two of the most effective for wall decoration among the green-leaved varieties.

Achillea Lewisii, hybrid King Edward, is one of the tallest. It forms thick tufts with soft, grey, dissected leaves, and its flowers, borne on six-inch stems, are sulphur-yellow, produced from spring to autumn. It flourishes equally in sun or shade. It has also a neat little relative, *A. argentea*, which grows in tight little silvery tufts four inches high, and has rather large white flowers.

The splendid trailing species, *A. umbellata*, is a much larger edition of *argentea*—invaluable for draping a big surface. Its flattish heads of white

flowers are freely produced if the plant is grown in poor soil. In fact, none of these *Achilleas* should be given a strong compost, or they tend to make too much leaf and to grow straggly. It is said by some growers that some additional limestone or mortar rubble mixed with their soil keeps the grey leaves in good colour.

Anthemis Aizoon is a pretty little Grecian Chamomile with a tuft of silvery leaves and small white daisies. *A. cupaniana* is a spreading variety, and should be trained to hang down. The flowers are borne singly on four-inch stems. It is good for a north or east position.

The *Artemesias*, of which the old-fashioned, shrubby Lad's Love of country gardens is a familiar type, have some small species with filigree foliage and the same aromatic smell as the Southernwood. One of the best dwarfs is *A. lanata pedemontana*. Other species suited to wall culture are *A. sericea* and *A. canascens*. These are shrubby little plants with graceful, branching foliage. In fact, these *Artemesias* may be looked upon as foliage plants, to be grown not for their often reluctant blossoms but for the contrasts afforded by their finely cut and grey-green leaves.

The *Centaureas* are the Cornflowers, universally



DRY WALL IN MR. MARK FENWICK'S GARDEN

Photo by R. Malby, F.R.P.S.

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beloved, and two of them, *C. stricta* and the rare *C. pindicola*, from Mount Olympus, may be tried in a wall pocket. The former is easy: it has the typical narrow, greyish leaf, and fine, deep blue cornflowers. *Pindicola* should be given gritty soil in a sheltered and sunny crevice, where it may spread its silvery rosette. The flowers are white in this species.

Eriophyllum (*Bahia*) *cæspitosum* is another saxatile plant in grey and gold. A silvery felt covers the leaf surfaces, and it bears yellow daisies large for its size.

For a bare patch which needs a quickly carpeting trailer, nothing is better than the little composite, *Erigeron mucronatus* (formerly called *Vittadenia triloba*). It is a graceful little daisy with masses of pale pink flowers, and it increases by persistent seeding. It is useful in any unoccupied portion of a wall in shade or sun.

CAMPANULACEÆ

With the Order *Campanulaceæ* we come to a genus closely associated with perpendicular faces of rock as well as with the high screes and debris of mountain ranges. The *Campanulas* are the most widely grown of all Alpine plants. Some

are difficult, but many can be grown without any difficulty. The species differ widely as to the position of the bell. It may be erect and open-mouthed, as in *C. istriaca*, when it is rudely known as a "starfish"; or it may open so widely as to present an almost flat appearance, as in the hybrid Isabel of the *carpatica* section; or, again, it may give us the beloved harebell, shivering on its dainty stem. Of all these types there are many variations, not all of them suited to wall culture, but we can pick out a dozen or so which will take to a wall as to their natural environment, and will grow prosperously and give bounteous results.

A generally suitable soil for them is a mixture of loam, leaf mould, and grit, but the rather difficult *C. Allioni* from Savoy and Provence is a curious exception, for it dislikes lime, and needs a cool place in sandy and gritty soil. A beautiful species with erect bluish flowers.

Campanula pulla comes from calcareous places in the Eastern Alps. Its bell of royal purple has the sheen so characteristic of the family, and the leaves are elliptical on short stalks. The stems are one-flowered.

In the smaller *C. arvensis* the bells are wide

open, the petals curving up and back from the tube. Both these species do well in a sunny position, but sometimes die off in winter.

Hardier perhaps are *C. macrorhiza*—the Riviera Harebell and *C. haylodgensis*. The former, a pretty little Harebell, adapts itself easily to any position. The latter, a trailer with light blue flowers, does best in some shade.

Very few *Campanulas* can bear being scorched, and long exposure to hot sun, combined with a dry pitch, will spoil their beauty. Their flowering also depends for its full beauty upon a good proportion of leafy stems, and they are always better after a year or two, when they have had time to form a luxurious mat of foliage which will creep about the stones or hang down in a long drapery. *C. isophylla* makes a fine picture cascading out of a wall. Blue-flowered, or sometimes white, this lovely Ligurian Harebell has several forms, one being especially common in window-box culture. In the variety *Mayii variegata* the bells are deep blue and the finely cut leaves are edged with white. Any of these species are suitable for wall culture, east or west.

The three which may be tried on a south wall, where deep pockets of soil have been prepared

for them, are *C. speciosa*, *C. garganica*, and *C. muralis*, or, as it is often called, *C. portenschlagiana*. *C. garganica* is an old garden favourite, and never likely to be superseded by the influx of new species and hybrids which keeps the market humming. This species has the long-flowering habit which is a mark of the finest and many of the oldest kinds. Its growth is vigorous, with a delightful sweeping habit, working upwards as well as downwards across the stones. When it is allowed to fall over a rock face it forms a sort of fan, clinging closely to the stone as it goes, and forming a lovely shower of colour. Its flowers are typically violet with a white eye, but the variety W. H. Paine is the finest in tint, and its star-shaped flowers are larger than in the original. Another hybrid is *hirsuta*, in which the leaves are grey with dense hair and form a charming background for the paler violet blossoms.

Campanula speciosa is, in effect, a miniature Canterbury Bell, small and sturdy. *C. muralis* is the common kind used in edgings, and most useful for its compact growth and extraordinary prolific flowering. Its full beauty is not realized until it is seen sheeting the face of a rock or wall. It is of the easiest culture, but it should be grown

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in the full sun. The masses of bloom last on into the autumn. Another excellent wall type is *C. istriaca*. This, like *garganica*, has flowers of the wide open, starfish type, violet with a conspicuous white eye at the base of the petals. This also spreads easily and makes a sheet of bloom.

Campanula Stansfeldi is regarded as a natural hybrid. It is a fine variety with hairy leaves and large, saucer-shaped bells of reddish purple. These hairy-leaved species are often the most beautiful, from the paler green of the foliage combined with the graceful dissected margin of the individual leaves. This quality is seen to perfection in *C. turbinata* and its hybrids, especially *pallida*, in which the pale blue saucers are nearly sessile upon rough, grey-green leaves. (This species does excellently in scree and in a trough garden.)

The open-flowered *C. carpatica* has one or two hybrids which are even more desirable than the type. Isabel is much to be recommended for its, good constitution, erect stem, and richly coloured flattened flower, but it is perhaps better in the rock garden than on a wall. Norman Grove, however, is very pretty nodding in a crevice, for it has a smaller bell of rich colour on a stem

only about four inches high. Riverslea is too tall for any but a very low wall, for its stems are a foot high and its growth is vigorous.

The dwarf *C. pusilla*, common on shifting screes in the limestone Alps and known in most of our cottage gardens, is most valuable where a neat and permanent edging is required, but it will also grow well enough in any unoccupied chink. Normally it is blue, but there is a white form called the *religieuse des prés*.

Campanula Raineri, from the limestone pastures in the Southern Tyrol, can be adapted to a wall. It is a beautiful species with downy leaves and erect flowers with a cup-shaped violet bell. It needs a very gritty soil, and an annual top dressing in the autumn. G. F. Wilson is one of the easier kinds, a pretty hybrid with drooping violet bells. It can be happily grown in a wide crevice, from whence it can spread if it has a mind to. Like all the rest which we have mentioned, it is best when shielded from too strong sunshine in July; in fact, all the small *Campanulas* are happiest on a ledge where sun and wind will not dry them, and an east wall is the best place to show them to perfection. There are several double forms among the various species; one, a double, I believe, of

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pusilla, is so pretty that although a double bell cannot be regarded as anything but an indiscretion, yet to see this frilled and fluttering pygmy is to be taken captive. No other small form makes such an irresistible cloud of colour as this fairy in pale blue.

A new species given the Award of Merit in 1934 is *C. Porscarkyana* from Serbia. It is a beautiful, star-faced type, and appears to be easy to grow and very floriferous. In appearance it is much like *garganica*.

The *Wahlenbergias*, or *Edrianthus*, are lime-lovers, and ask for a rock ledge in the sun. *W. serpyllifolia* is a splendid plant with rosettes which increase pretty rapidly and are abundant in bloom. The large, upstanding purple bells have the rich colour and the silky sheen of many of the small *Campanulas*, and it is as easy to grow. The species *pumilio* makes a tuft of shining silvery leaves, contrasting with lavender, saucer-shaped flowers. There seems no reason why these two choice plants should not be "translated" to a higher sphere from the moraine.

Phyteumas have also proved themselves adaptable to a wall crevice where a limestone soil has been provided for their needs. *P. orbiculare*

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is a native of Britain, though rarely found. *P. Scheuchzeri* comes nearest to it for ease of cultivation. Both grow readily in the rock garden where good drainage is ensured, and very quaint they are with their ragged heads of blue. One or two of the family seem to need a granitic or sandstone soil; for instance, the tiny species *P. hemisphaericum*, whose grassy foliage spreads into a tangled mat, the round heads borne on two-inch stems. This is not an easy plant, even in the moraine. The freakish *P. comosum* from the Carpathians and Tyrol seems to be hardier, and will flourish in ordinary gritty soil in the rock garden. Perhaps the only reason for relegating it to the moraine is that grown there it is more protected from slugs which are as partial to it as they are to *Campanula Raineri*. Many people have tried to describe its flowers by analogy, though a better one than "lobsters' claws" or "soda-water bottles" has yet to be devised; but none can dispute the plant's strange fascination. It grows excellently in a shallow pan, and should, therefore, succeed in a wide crevice. In any case, to grow it is an adventure.

CONVOLVULACEÆ

From the *Convolvulaceæ* we get that incomparable trailer, *Convolvulus mauritanicus*, indispensable in the milder districts, but unfortunately, not entirely hardy. It is not difficult and has no special preferences as to soil, though it undoubtedly likes a south aspect. From the joint of a low wall it will grow and hang down perhaps two feet, its wide bells forming a loose trail of colour which may be called electric or periwinkle blue, but is really a tone distinct from that of any other rock species. Cuttings should be taken in July and kept in a frame in the winter.

PRIMULACEÆ

The Primrose Order, *Primulaceæ*, comes next with a multitude of widely varying forms and equally varying affinities. It is not an easy group in horticulture, for many die off after flowering, and few of the choicer species are entirely reliable, whether in walls, rock garden, or moraine. The rock-loving *Primulas* are mostly European, and a typical species is *P. auricula*. They all make a considerable root system and must, therefore, be planted where they can get plenty of nourishment from a rich soil. A horizontal position in

cracks and crevices, if it affords perfect drainage, will suit them well, and an east aspect is the best for them. The roots should be tightly wedged between two pieces of stone; and Mr. W. A. Clark recommends the use of soft clay instead of loamy soil to pack in round the base so as to retain moisture. He also advises a sheltering ledge or stone placed above them to avoid wetting of the leaves by rain. It follows that watering must be resorted to in the growing period.

The rare *P. marginata* is as easy to grow as any other. It is an exquisite species of the limestone Alps with smooth, thick leaves and an umbel of rose-coloured flowers on four- to six-inch stems. The leaves are especially beautiful with their crinkled, golden margins.

Primula integrifolia is another limestone plant, very common in Switzerland, forming large mats of tufted leaves. The flowers are large and rose coloured.

Primula viscosa and *P. hirsuta* grow on granitic rocks. The flowers in the former species are rosy purple with a delicate fragrance, the broad leaves fringed with hairs. Both are beautiful and should be reserved for walls built of sandstone or granite.

An exceedingly handsome species is *P. Clusiana*

from the limestone Alps. Its rosettes of dark green leaves have a whitish margin, and the large blossoms are carmine with that slight impurity which brings magenta to the offended mind. It will grow in a mixture of peat and sand in an east aspect. More definitely—or some might say gloriously—magenta is *P. Veitchii*, one of the *Cortusoides* section from China, but it has a golden eye to its corolla which makes it very brilliant and distinct. The large leaves have a thick felt on the underside, and the plant, which is large and takes some room, will grow on the shady side of a low wall where there is either some depth of soil at the back or a pocket with plenty of humus.

An extremely distinct and uncommon little species is *P. Tirolensis* from the dolomitic limestones. Its bright rose flowers rise from stems covered with imbricated leaves which are covered on both sides with glandular hairs.

These *Primulas* will always need some care all through the growing season, and after flowering they should have a top dressing of new soil. They are among the many cultivated plants which so often fail to give of their best for want of attention after the flowers are gone.

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The *Androsaces* belong to the Primrose Order, and they are among the most coveted and admired of all the more capricious Alpine genera. Nor can it be said that they were neglected for want of a poet to hymn their charms. Their *vates sacer*



PRIMULA TIROLIENSIS

arose when Farrer wrote about them so truly and so beautifully that there remains nothing new to be said. No one will cavil at a quotation from his chapter:—

Never do they suffer surface damps; their main liquid refreshment being, as a rule, imbibed from the atmosphere of the evaporating wet rocks in their neighbourhood. Therefore after the prudent method of their kind, they have all armed themselves more or less thickly, with a

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fine, close down of soft fur that sucks up every scrap of humidity that may be floating near. They become little animated sponges, agog to soak up any available moisture. No fear, up in those blazing or frozen heights, that their hairy coats will become overloaded. And in the worst droughts of the mountain summer, their down saves them from parching, while, in those clear rarefied altitudes the sun's beams have no such devastating power as on the lower slopes.

He goes on to contrast these conditions with those of our wet and treacherous climate, which invades their resting time with damp, and clogs their hairs with moisture. No wonder that an *Androsace* on the rockwork often sinks into a state of querulous invalidism.

Many growers make it their custom to cover the delicate species with panes of glass through the wet season, but even without such protection the hardier forms can be grown, as we all know, when rockery conditions are carefully adapted to their wants. "Coarse, gritty peat, with sand and plenty of limestone chips," was Farrer's formula; and, treated thus, with a ledge of rock as a shelter from the wet, many of us grow *A. sarmentosa*, *A. carnea*, and *A. primuloides* fairly comfortably. No one can, however, depend upon their winter survival where the climate is damp or the ground level low.

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Miss Jekyll chose *A. lanuginosa* for her walls, and one could not find a more beautiful form among the trailing species. When once established it trails energetically over a rock face, producing its rosy lilac blooms in July. There is now the Himalayan form on the market known as *lanuginosa Leichtlinii*, varying in the colour of its flowers, which are white with a crimson eye. It is an enchanting little species, reminding one of a *Verbena*. Its flowering season, too, is longer than any of the rest. *A. sempervivoides* should not be considered difficult under proper conditions. It sends out stolons with rosettes at the end, by which means it is easily propagated. These long trails often extend over a foot, while the central rosette remains neat and prostrate. The flowers are brilliantly pink, and appear in April. It is not uncommon to have it in bloom at the same time as *Æthionema*, Warley Rose. These species all possess the soft, downy leaf that is so sensitive to moisture, therefore special attention should be paid to their crevice in the wall. An upper course is good, being open to the air, and if open also to the morning sun, so much the better. A projecting ledge overhead makes a good protection, but since a driving gale is

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likely to swamp the crevice with moisture, means must be taken to keep it out. It is not a bad thing to build up the lower part of the cavity with a piece of slate or stone for the winter months. Then the plant, reduced to its tight rosettes, sits in comparative shelter without getting soaked round the crown. Two other easy species are *Androsace carnea*, which does well in a peaty crevice (NOT in full sunshine) and *Douglasia* (formerly known as *Androsace*) *Viteliana*. The former is very small, with pretty little heads of pink flowers, and the latter, which wants a very stony soil, is yellow-flowered, more like a *Primula*. *Androsace foliosa* should succeed if it is given a deep bed of grit and leaf mould on the south side. It is in truth a vigorous grower and spreads into a delightful colony, each rosette bearing an umbel of rosy purple flowers.

BORAGINACEÆ

Our good old native Borage has some relations in very high life. The *Mertensias*, *Omphalodes*, the distracting *Eritrichium nanum*, and the *Onosmas* are all Borageworts, and choicest of species for rock garden or moraine. There is a charm about the whole family, with its scorpoid stems and

peardrop flowers, reminiscent of the water brooks in the summer when the Comfrey is abloom. *Onosma Tauricum* is the more valued because it flowers at a time when its clear, delicate yellow is rare. Also, its almond smell is unusual among Alpines, which are so often scentless. When brought to a ledge in a dry wall, east, west, or south, it settles down contentedly to a long season of flower, nor are its pendant sprays ever seen to greater advantage than against a slab of stone. The other members of the family bring us back to blue—to every shade of blue borrowed from sky or sea, jewel or bird. Perhaps the most commonly loved of any blue flower is the Water Forget-me-not. As for the deeper tones, who shall say which is the Queen of the Blues, the coveted, capricious *Eritrichium* or the *Lithospermum*, which is called “heavenly blue”? There is a general feeling amongst gardeners that the *Lithospermum* tint is to the artist what the black-bird’s song is to the musician. Yet some love the “blue china” of the tiny *Houstonia cœrulea* with equal affection and others the deeper blue of *Parochetus*. Of all the earth colours, blue is the most desired and most ardently pursued; and next to the Gentians, the Borageworts show us

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the colour in its utmost intensity and its most ethereal tints. *Linum prostratum* will grow in any loamy pocket which contains no lime. It flowers early and often late as well. *L. intermedium* is a hybrid, from the mating of *L. graminifolia* and *L. petraeum*. Its comfrey-like flowers are as beautiful in their way as those of *L. prostratum*, and both plants should be grown for their differences in line and tint. Sunshine is necessary for them for longer than part of the day, and a little peat is an advantage in their soil. They are, as everyone knows, among the most inveterate lime-haters in the Vegetable Kingdom.

Mertensia echioides is an excellent subject for a shaded position in a crevice filled with soil that is partly loam, partly peat or leaf mould. In its pendant bells, the blue petal is exquisitely blended with the yellow of the throat. Its flowers are, however, rather variable, changing to pink just as the Forget-me-not will. *Mertensias* should not be exposed to the full sun of summer, but grown on an east wall, under one of the overhanging ledges. In all these plants it is better to begin with quite small specimens and not to allow them to flower too much in their first year.

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In *Omphalodes Lucilliæ* there is no deviation from the prevailing and exquisite shade of blue. It is a good wall plant which has none of the rampant, trailing habits of the woodland *O. verna*, but forms neat little tufts whose leaves have a bluish, glaucous tint. It is a limestone plant and is generally grown in the moraine, but will succeed in a wall joint if sufficient limestone chippings are mixed in the gritty soil. A tiny treasure of only four inches, it should be brought to the surface of the wall where its beauty can be enjoyed at an easy level.

PLUMBAGINACEÆ

The genus *Armeria* gives us the Thrifts of our maritime shores. Easy in any circumstances, these pretty plants succeed admirably either on the top or upon the face of a wall in sunshine. They are especially valuable in places where the exposure is too bleak for more delicate things. There are several garden forms of the common Thrift, *A. maritima* (Vindictive) being the best. The flowers are a brilliant crimson and are produced all the summer.

A rare Spanish species is *A. cæspitosa*, smaller than our own, forming rosettes with large pink

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flowers. At the other end of the scale is the large species *A. plantaginea*, var. Bees' Ruby, a splendid plant with stems eighteen inches high. All the Thrifts should have a sunny place and a light, sandy soil.

LABIATÆ

"I have a sight to sell. Come, who will buy?" Such a sight worth selling was a ruinous old wall planted with scented plants, the majority being labiates. Needless to say, there were no gay effects of colour, for the labiate plants rarely give us any showy blossoms until the cultivator lays hands upon such of them as have showy inclinations, and by supervision of their mating changes their raiment to crimson and scarlet. The general effect was of a sober grace with occasional exuberance, for it was wonderful how all the fragrant things took to that wall. Not only Hyssop "sprang out" of the joints, but Mint also with Basil, Sage, and Thyme. The fragrance was not very noticeable as one passed along, for the essential oils are "fast of their smell," and wait for a light touch before sending their gifts abroad. Only the Pennyroyal in the paving greets you as you pass, though the merest whisper

of a movement is enough to awaken the Lemon Thyme. I don't know any other labiate that is so quickly responsive: it is like a sleeping cat which will begin purring if one's hand only brushes his fur.

This Thyme, of course, was bushy and vigorous in the old wall pockets. *Thymus nitidus* grew in small clumps with a more exotic fragrance, and the white form of the common *T. serpyllum* crept over the broken stones. The purple *T. azoricus* also made a sheet of purple in July, and gave forth a queer scent like that of Tangerine oranges. The hybrid *T. serpyllum coccinea* had been planted on a lower joint from which its dark, matted foliage was spreading, and its brilliant blossom made a conspicuous patch against the reddish stone.

The thorny *Micromeria corsica* grew as happily or more happily than on the rockery steps, and a sweeter, commoner smell came from the little Clover, *Trifolium alpinum*, reminiscent of Alpine pastures. The bush of Sage on the top of the wall waved its powdery branches and violet flowers against the sky-line and was curiously transformed from the dullness of the kitchen garden. It did not make the wonderful etching

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that the pinnate leaves of an *Azara* or a *Sophora* will make against a light background, but it gave an impression of velvety softness more like the wings of a bird as it swayed to and fro. That Marjoram should also prove a good wall plant was not surprising to anyone who loved our native plant in the quarries or by the roadside. The Sweet or Knotted Marjoram was the kind grown, and one felt conscious, even before one touched it, of its individual scent, warm and resinous, sweeter than Sage and as refreshing as the Thyme. The Mint was the closely carpeting *Mentha Requienii*, and the good old Rosemary was *Rosmarinus officinalis*, grown, as Miss Jekyll used to grow it, trained as a wall plant in a charming way.

Of the Lavenders the curious *Lavendula Stæchas* had a place on the face of the wall, where it was not apparently making much headway. I fancy it needs more sunshine than an east position will afford. At the wall foot, the Munstead Lavender made a fine bush in a deep, sandy soil.

The beautiful *Nepta* Souvenir d'André Chaudron was planted in a deep wall pocket. This fine hybrid, with its sprays of richly coloured

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flowers, wants a sunny place in a soil that has natural nourishment without being manured.



Sketch by]

[Miss E. M. Barlow

NEPETA—Souvenir d'André Chaudron

A good, sandy loam is most suitable. Its foliage is less aromatic than *N. Mussini*, but it is in every way a more beautiful plant and makes a splendid edging.

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The pink-flowered *Calamintha grandiflora* gave one of the brightest patches of colour on the wall top, where it was companioned by the Hyssop. A rarer plant in this delightful miscellany was *Ruta montana*, a pretty little dwarf Rue with fern-like leaves of a low-toned, greyish colour and lemon-yellow blossoms.

The pretty little *Origanum pulchrum* had just been admitted to this great company of the aromatics. It is one of the most delightful of its group, for the flowers are in sprays resembling Hops, pink in colour, while the foliage is refreshingly scented.

Teucrium chamædrys was not in the collection, but it is an excellent plant for a pocket from which its shrubby little branches, with their deep pink flowers, hang over in trailing fashion. It needs a sunny place.

Nor were the *Dracocephalums* represented. They throw up tallish flower spikes and are only suited for the top of a wall, but *D. Isabellæ*, the Dragon's Head, is worth trying. It does well in a sandy loam in sunshine; its flowers are beautiful, of a glowing purple, and freely produced.

This scented wall was a memorable picture as one passed along it on a sunny afternoon, in an

atmosphere subtly but never overpoweringly fragrant. It is extraordinary how these labiates differ to a fraction in the content and, therefore, in the fragrance of their oils. Many of them, of course, like Horehound, are disagreeable to the average nose. But obviously, people differ as much in their reaction to scents as they do—or certainly as our ancestors did—in their ideas of beauty. Gerard called Coriander “a very stinking herbe,” which it is not generally considered, and it is remarkable how many people fail to recognize what one might think was the irresistible odour of Hops in the Wood Sage. Perhaps there is only one scent that in the temperate zone is universally acceptable, the smell of hot pines. I remember the driver of a “one hoss shay” in the old, leisurely days being so overcome by the fragrance of the adjoining pine wood that he turned round and exclaimed, “What a beautiful smell, Mum!”

But the pine smell is one, while that of the labiates is many. For this very reason, however, a wall of fragrant oils has much to commend it, for one may always release one’s own favourite scent and leave the others to their work unmolested. Certainly this wall as I saw it on a

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summer day was pleasant both to the eye and the nose, and must have been so to anyone with what an American writer called "a downright good nose," a gift more prized by the old gardeners of the past than it is to-day. Nor was there a plant upon it that did not settle in as naturally as a Wallflower or a Snapdragon. And the Snapdragon brings us to the *Scrophulariaceæ*.

SCROPHULARIACEÆ

Newman wrote of his departure after the many happy years at Trinity College in a homely phrase: "There were," he said, "so many Snapdragons on the wall."

No wall should be without this desirable old English plant, *Antirrhinum majus*, whose frequent occurrence in chalk pits and limestone quarries tells us of its partiality for lime. The cultivated kinds, however, grow well in all soils, nor is it necessary to choose the most modern hybrids. The yellow kinds, however, are very beautiful on grey stone. They are among the most suitable plants to insert into a crevice of a masonry wall by sowing a few seeds in a ball of earth. The Italian species, *A. asarina*, will also grow in a crevice where the conditions are similar. It

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is an interesting plant with a fleshy stem, large leaves, and equally large blossoms of yellow.

The Toad Flaxes are delightful little people, adapted, as everyone knows, to walls by the Mother of Thousands. *Linaria æquitriloba* is a tiny crevice plant with flowers of cream and purple. *L. hepaticæfolia* is purple and mauve. This species—a Corsican—differs from the rest in that its shiny leaves are mottled with white. Toad Flaxes will run about in any direction, needing little in the way of sustenance. The little ramper, *L. pallida*, from Italy will be mentioned again for pavings, and so will the lovely dwarf, *L. alpina*, but any of the family can be equally well grown on a wall where, in fact, the pencilled beauty of their odd little flowers can be the better seen. They all flower profusely throughout the summer and into the autumn.

Several Speedwells are suited to a wall pocket, such as *Veronica Teucrium Trebane* and *V. Teucrium* var. *dubia*, which used to be called *rupestris* and which is generally grown in the rock garden, which it adorns with its brilliant sheets of blue. The former is valuable for its conspicuous golden foliage, and its flowers are also intensely blue. *V. pectinata* has woolly grey foliage and long spires of purple.

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Handsomest of all perhaps is the taller *V. amethystina*, which is a notable sight when a large clump of it is covered with soft spires of blue. This glorious species is generally seen in the rock garden, and is probably less suitable than the prostrate forms for wall culture.

Ourisia coccinea is a Chilian plant and therefore liable to be regarded with some suspicion as to its hardiness. Nevertheless, there are many Chilians—and this is one of them—that have stood the test. The *Ourisia* is not a sun-lover, but thrives in a moist, cool place, which is partly the secret of its success. It has, moreover, a fleshy rhizome which wanders underground and propagates the plant without trouble. When we add that the flowers are as brilliantly scarlet as those of *Zauschneria*, and that they have two seasons of bloom, it will be seen that here is a plant for an east or north-east exposure and worth a trial if it can get a pocket deep and moist enough for its roots. A good root run in the body of a wall would give it the best chance.

GESNERACEÆ

These plants have much in common with the *Scrophulariaceæ*, and they include the *Ramondias*

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which every rock garden lover tries to grow, but which many have removed to a wall pocket with results wholly satisfactory. They want, in fact, special planting in a perpendicular position in a deep pocket packed with leaf mould and a little peat for moisture. A ledge above is also helpful because it keeps off the rain. In such a position *Ramondia pyrenaica* will spread its big, crinkled rosettes over the wall, and will produce its lilac, golden-throated flowers to perfection.

So, too, will *Haberlea rhodopensis*, whose flowers resemble those of *Streptocarpus*, but are freckled with gold. The secret of success with these plants is plenty of humus in the soil to prevent their drying out and rolling up their leaves in summer. And secondly, wet must be kept away from the crown. When they grow well, they are excellent species for the wall pocket.

HALF-HARDY GENERA

The *Gaxanias* and *Mesembryanthemums* have been hitherto omitted because they do not properly belong to the category of hardy plants, and one does not look upon a dry wall as a suitable place for "bedding-out." Still, there are districts in the

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south-west of Britain where both genera will come through the winter on a light soil, and both are easily replaced by a few cuttings.

Everyone knows the flaming orange of the ordinary bedding *Gazania*, its colour made more conspicuous by the ring of blue near the throat. A wall shows it to the greatest possible advantage. There are several species in common cultivation. *G. Fletcherii* has lemon-coloured flowers and is a prolific bloomer. *G. nivea* has gleaming white flowers and is very beautiful and rather rare. These "treasure flowers" of South Africa should be grown on the south wall.

As with *Gazanias*, so, too, with the *Mesembryanthemums*, there are many sunny places, especially on the Cornish coast, where they survive the winter. *M. uncinatum* is the hardiest and is well known, being often included in bedding with good effect, its pink flowers produced in late summer and autumn. But seeing that the perfect place for this genus is a stone wall it seems a pity that they are not more commonly grown, for cuttings taken in August grow on under glass and can be treated like *Geraniums*. But it is only the really good, free-flowering and large-flowered kinds that should be grown, for some

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that appear in the catalogues are inferior in quality and deficient in bloom.

The species generally seen in bedding is *M. turbinatum*, with large pink flowers and a robust habit of growth. There is also a white form. Another vigorous species is *M. purpureo croceum*. The fleshy leaves are glaucous, contrasting with the orange flowers which are purple underneath. This is a handsome species. *M. Brownii* also has orange flowers but smaller. A violet species is *M. violaceum*, the flowers of a brilliant hue. All these remain in bloom during the greater part of the summer.

The late-blooming species are *M. productum* var. *atropureum*, with large violet daisies; *M. floribundum*, mauve; and *M. conspicuum*, violet with white eye. *M. aurantiacum* is an early-flowering orange kind; and *glaucum*, also blooming early, has yellow flowers. There is, I believe, a species which, contrary to the habit of the race, does not close its flowers in the afternoon; but the closing is otherwise universal among them and perhaps accounts for their comparative neglect by dry wall gardeners.

CHAPTER V

FLAGGED GARDENS AND PATHS

A FREQUENT criticism of the flagged path is that it is a modern and fanciful substitute for the grass verge or lawn. It is, however, only a revival of an ancient fashion, nor should it ever be regarded as a substitute for the green grass that is so lovely and friendly in both its life and its death—the living carpet of the world. A paving is more frequently a substitute for gravel paths which are in themselves often dreary and uninspiring. Further, in a small garden it increases the area of cultivation as a background for a specialized flora, while gravel only harbours the uninvited weed. Also, every gardener realizes that there is something to be said for laying a path that does not retain the moisture in a climate where there is rain above or damp below for at least five months in an average year.

Crazy paving, now becoming increasingly popular, not only provides this enduring foot-way on which we can work irrespective of the weather, but it conveys the immemorial associa-

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tion between rock and plant out of which the world has been fashioned. In its low-toned colour it provides a foil to the richer vegetation of beds and borders, while many treasures of smaller substance nestle brightly between the chinks of the stones. It cannot compete with velvet turf as a frame for a beautiful garden picture; but there are many small houses where turf is not desired, and where the formal lines round about the house itself are more suitably carried on by a paved walk or terrace that connects the walls with the garden.

A stone house naturally demands grey limestone paving, while red sandstone is more harmonious with brick. Here and there an enterprising builder has surrounded his bungalow with a dashing arrangement of terra-cotta finished by some wide red pots or tubs, and in Sussex one has seen some very picturesque and bold devices carried out in the Horsham slate. In larger gardens, especially where there is a rock garden or a terrace bounded by a dry garden wall, a paved path constructed of rectangular slabs of stone fits into the picture in perfect harmony, while a flagged enclosure, bounded by a wall or formal hedge, has the sequestered look



DRY WALL IN THE ROYAL HORTICULTURAL SOCIETY'S GROUNDS

Photo by R. Malby, F.R.P.S.



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of a place secure from all confusion, remote from stress and trouble, soundless but for the bird voices and the humble bee humming to his Thyme.

The plants that will grow in the crevices are exuberant in variety, happy in all exposures, and unmarred by wind and rain. Many are aromatic species which, while rubbing against your feet, greet you with a heaven-borne fragrance, while many choicer varieties chosen for the chinks and fissures delight the eye with brilliant spots of colour.

This book is mainly concerned with the plants themselves, but seeing that their well-being so largely depends upon their right environment, and that all planning and building for the home is an adventure full of delight and promise, some details concerned with the actual work of preparation may not be boring even though they have been often told.

CRAZY PAVING

The spot should be drained in the usual way, for success largely depends upon it. Sometimes, if the soil is light and porous, a rough foundation of clinkers will suffice, but wherever the

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soil is on the heavy side it is better to lay a drain-pipe. For a five-foot path one pipe would be sufficient. The site should be excavated to eight inches, the pipe covered with about five inches of brick and clinkers, with a two-inch layer of ashes or sand on the top. On this foundation, rammed down to absolute firmness, the paving stones of different sizes, or the rectangular slabs of Westmorland or Yorkshire stone, can be laid. It is a good plan to scatter some fine soil over the paving and brush it well into the crevices, as this will help to bind the smaller stones in the place of cement. One ton of thick crazy paving will be wanted for a plot of ten square yards.

The work of embedding the stones or slabs is all-important in relation to its durability, for unless it is very firmly done there will be a subsidence and loosening of the material, especially at the outside. To remedy this, and for a pathway where there will be constant traffic, it is sometimes safer to have the outside slabs set in mortar. In ordinary cases, however, this ought not to be necessary, and on a good foundation, slabs of all sizes can be safely laid with their edges in juxtaposition, leaving irregular

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spaces between. It will be realized that in laying this pavement, as in building a wall garden, we are perforce doing two things at the same time, for the plants should be waiting to go into their quarters while the stones are settling down. This means that some sort of plan should be thought out beforehand in the Chinese way, for it is said that these meticulous plantsmen paint a picture of their garden before it is made. On the practical side it means also that at selected spots the foundation must be scooped out for little pockets of soil. Ordinary loamy earth with a mixture of sand will answer most purposes.

But the gardener who looks well ahead will do more: he will bring some lime into the pockets, or will use some preparation like Sofnol with the soil. A pavement is a very permanent thing, and cannot be constantly renewed like a herbaceous border. The possibility of the unworked soil becoming sour must not be overlooked, especially when the choicer species are included, as they will be by those who want to make the best of their adventure.

As to the stone itself, the choice for many country dwellers will be determined by local

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access to a quarry. The finest stone of all is generally thought to be the Yorkshire limestone, but there are many other kinds up and down the country less expensive, as enduring, and satisfying to the eye. There is a good siliceous limestone near Salisbury, and a fine reddish stone with roughened surface in Somerset. The Westmorland limestone and the Sussex sandstone both afford a beautiful low-toned background for plants of translucent green. Sometimes also the old grey slabs from a demolished roof can be squared and fitted with admirable effect to a paving.

It is often felt that a flagged garden needs some additional detail to consort with the austerity of the floor, and it was noticeable how many of the exhibits at Chelsea in 1934 dealt with varied designs in formal gardening, as contrasted with the beautiful rock and "mountain pieces" fashioned of natural stone. Some of the brickwork exhibited in terraced walks and garden shelters was particularly fine. In one instance there was a sunk garden in the centre of a flagged space, entered by short flights of steps and finished by a bird bath wrought of the same grey stone. It was a very satisfying picture;

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for a bird bath, always to be welcomed in any kind of garden scheme, brings into the silence of an enclosure the pleasant sound of the flutter of wings and splash of water. This and several other formal arrangements were conspicuous for restraint in design and artistic finish in detail.

The sundial, however, still holds its own as the most appropriate and shapely ornament for a rectangular flagged space, and is the more beloved for its ancient history and associations. The shadow on the dial has become for man more symbol than shade, but in the garden the pointer keeps pace with the petals of wood sorrel and daisy as they turn inwards for the night.

Where there is no room for a sundial or any other ornament, nothing gives such a picturesque touch as a few steps connecting different levels, more especially where a small rock garden has been made. Steps can be built in several ways. The simplest and cheapest are made out of flat pieces of undressed timber; but where paving exists, a more beautiful stairway is formed from similar blocks of weathered stone. Narrow slabs measuring about four inches thick can be brought to the front edge, and the tread should be at least eighteen inches wide. The "riser course" is

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conveniently made of small pieces, though sometimes weathered brick is employed for effect. All that matters from the point of view of harmony in design is that the steps, where they are connected with the path, shall look like a natural continuation of it. Many a beautiful picture has been built by their aid in the larger rock gardens, through which they ascend along a rock-bordered path leading to high ground where groups of shrubs and taller plants complete a scene of restful and simple beauty. Even in the rock gardens that consist of a few bold groupings with a background of turf, a few steps can often be introduced in reasonable harmony with the surroundings. The main practical concern of the builder in dealing with large slabs of stone is to secure a wide, firm tread, so that no one even in the twilight shall be obliged to pick their way or walk unevenly.

All this preliminary work is like the building of a good road, which reduces inequalities to a measured level between portions where Nature may still hold sway; and Nature will soon bring the steps, the paving, and the plants into harmony.

Once the latter are introduced, they will be seen always prevailing, inch by inch, over their

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boundaries: rosettes and hummocks will soon dispute the path with trailers; drifts of *Veronica* or *Aubrietia* will blur the outline of the slabs, and there is no stone so impregnable that some carpenter will not arise to subdue it in its advance. The smaller and choicer species, and there are many that can be brought from mountain and plain into the joints of the steps or crevices of a paving, must, of course, be inserted with forethought lest they should suffer injury from the daily tread. To be always on one's guard in walking or stepping would spoil the restfulness of any garden path. But there are many prostrate plants of a faithful and enduring quality: they can bear to be trodden upon, and in a gritty soil with good drainage they flourish through the winter, never reduced to phantoms by the frost. It is the evergreen vitality of these species that so soon lends a flagged path its mellow look of habitation, of life rooted and contented on one small patch of earth.

PAVING PLANTS

This flora of the flagstones is not so widely known or appreciated as, for instance, that of the herbaceous border, but it has a peculiarly lovable

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quality of its own. Only a few of the plants available may, of course, be grown in any one instance; yet to extend one's knowledge of the different genera and species gives one a greater independence in the matter of choice.

Many people buy "a collection of twelve plants for crazy paving," and stick them in haphazard. They will, no doubt, be excellent and appropriate little plants, but they will give no idea of the great diversity that exists among their fellows. It is a diversity worth studying. Many of these crevice plants are of minute proportions and pre-Raphaelite precision, and a close inspection reveals exquisite details of structure. There are pincushions studded with microscopic stars, and spiny-leaved tuffets showing a quaint array of spears and polished armoury. Some of the densely crowded hummocks are clad in russet and silver, while others are like woven mats of felt or fur, soft as a Wilton carpet, yet, when properly sheltered, indestructible.

And as their form varies so also does their colour. Indeed, in many of the Alpines the earth-tones are wrought to the highest key, and bosses of apple-green, ochre, bronze, and the warm yellow that we call golden glow as brightly in

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the chinks as in their native fastnesses. It will be seen, therefore, that even in these specialized groups there is a wide margin of choice, whether in tuffets or trailers.

Of course there is only one way to make sure of the plants one prefers, and that is to see them growing and then to grow them oneself. Preferences are highly individual, as everyone knows who has lent his favourite book to his best friend, nor are the greatest gardeners free from favouritism amounting to prejudice. One recalls, for instance, Reginald Farrer's curious dislike of clustered flower-heads, or of certain individuals like *Arabis cœrulea* or the Yellow Gentian. Probably at some time every gardener has secretly despised his neighbour for admiring the wrong thing. Yet the finding of the right thing is difficult for those who live far from London and who cannot go to the Shows or Botanic Gardens, and are therefore thrown back on lists and catalogues. Some of the latter, issued by the high-class firms which specialize in Alpine and herbaceous plants, are full of helpful descriptions, so that it is easier than it used to be to select from such sources material for one's choice. In a catalogue, however, space is neces-

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sarily limited, so that paving and wall plants have to be classed with rock species as a whole. It pays one best to have a clear idea of what one wants before the lists are consulted.

Most of the paving plants, as such, are easily grown. A pavement, or even a flagged garden, is hardly the place for the culture of rarities. The bulk of the species here described are, therefore, those in common cultivation, while a few of the less common or more difficult plants have been included as suitable for gardeners in particularly favoured spots. The list as it stands will perhaps be found representative enough to meet most people's necessities throughout the country.

CHAPTER VI

PLANTS FOR CRAZY PAVINGS

HERE we begin with the Crucifers, for there are very few of the Buttercup Order suitable for the chinks of paving stones. There would be no need to extol the uses of *Arabis albida*, common in every garden, and quite as accommodating on a bank or wall as in a paving but for the fact that its pretty pink relatives are so little grown and appreciated. There are some of the European species pink by nature, and there are others of hybrid origin. The species are *A. aubrietoides*, *A. Billardei*, *A. Lemmoni*, and *A. blepharophylla*, though the latter is difficult to obtain true and is inconstant as to colour. All these seem to be neater in growth than the ordinary *A. albida* and its double form, and they are therefore more suited to pavements. There are also two hybrids of *A. pallida* with pink blossoms, *rosea* and *rosabella* (though I am uncertain whether these are really distinct). The pink species are all pale, but the effect of the massed bloom against the greyish foliage is very pleasing.

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The *Aubrietias* have, of course, been dealt with in the wall section, but they must not be neglected here, for they make showy and useful clumps in a pathway. *A. deltoidea* from Greece was the first one imported, and it was followed by two others of the south European species, *A. tauricola* and *A. leichtlini*, both of which have bright purple blooms. The rest of the delightful forms which cheer our spring gardens are hybrids, and they are so constantly increasing that it is not difficult to pick out the colour one desires from the catalogues. Two, however, of outstanding merit may be recommended. *Gloriosa* is a very perfect pink form with a white eye, and Mr. Elliott's 1928 hybrid, *Carnival*, is perhaps the finest purple among many richly coloured forms. *Vindictive* was another of the Six Hills hybrids to gain the Award of Merit of the Royal Horticultural Society: its flowers are a vivid crimson that is not entirely free from the ancestral purple. A clump of *Aubrietia* is a satisfying sight in a paving of grey or red stone.

Among the smaller Crucifers are the *Drabas* which come from the Alps and Pyrenees. They are glorified editions of our own native Whitlow Grass, generally about an inch high, and yellow-flowered.

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Draba aizoides is sometimes considered a native of Britain, as it flourishes persistently at Pennard Castle in Glamorganshire, but it may well have been naturalized. It is cultivated as a suitable little plant for a wall or rock garden, but horticulturally the two best species are *D. Dedeana* and *D. pyrenaica*. (The latter is sometimes listed as *Petrocalla pyrenaica*.) The former is for the moraine or rockery where there is sharp drainage. It has the usual rosette of its family, and sends out runners that form new rosettes crowned with white flowers. *D. pyrenaica* is smaller, with stemless flowers, and it needs similar conditions.

The *Erysimums*, or Fairy Wallflowers, are deservedly popular for any position flanked by stones. The smallest is the dwarf *E. pumilum*, which forms a neat tuft with pale yellow flowers. The other two, *E. pulchellum* and *E. linifolium*, are little bushes, useful as all bushlings are in a triangular space between slabs. The latter has lilac flowers; the former is a sheet of gold in its flowering time.

Another excellent tufted species, *E. alpinum*, is sometimes classed under *Cheiranthus*, a tidy little plant, similar to *E. pulchellum*. All these are absolutely hardy anywhere in Britain. The same

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may be said of the common Candytuft, which was mentioned in Chapter III. For paving purposes the best variety is the hybrid of *Iberis sempervirens*, called Little Gem.

The *Alyssums* are very happy-natured plants for any position. The common *saxatile* is rather large and invasive for crevices, but the hybrid *compactum* is quite suitable. Also there is a shrublet worth remembering, the Spanish *Alyssum* (or *Pilotrichum*) *spinosum*. It is a spiny, silvery plant covered in spring with small white flowers.

Alyssum serpyllifolium is another fairly neat-growing species with the typical loose heads of bright yellow flowers. The foliage is silver-grey and the growth prostrate.

A tufted little cress not so commonly grown is *Hutchinsia alpina*, suitable for the shady side of the pavement. It has pretty, light green leaves and white flowers.

The *Caryophyllaceæ*, the Pink Order, give us several of the most familiar Pearlworts and Sandworts used for chinks in gardens. Some, like the Campion and the Soapwort, are native in Britain. The Order is fairly well marked by the stems swollen at the joints and bearing leaves in pairs: the calyx and corolla unite in the narrow

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tube, which gives the "single" Pink its dainty bearing. Many species are mountaineers, mainly in the temperate zone.

The pygmy of the clan is *Arenaria balearica* from the Balearic Islands, one of the most indestructible of all rock-sheeting plants. Its mats are so slender that it creeps over the stones like a film, yet the tread of a foot leaves it uninjured. In May it becomes spangled all over with tiny white stars poised on wiry little stems that shiver as the breeze touches them. The delightful wee blossoms are thus raised above the foliage and shine like starry points of light against the darker background. The plant increases rapidly in a shaded place, but it will run about anywhere, either over horizontal flagstones or up a perpendicular face of rock. Its near relative, *A. norvegica* (syn. *gothica*), is a rare native of Britain in mountain districts and is said to be increasing. It is a beautiful little Sandwort, larger than *balearica* in all its parts, its flowers of a snowy whiteness. It will not do well on a stiff clay soil, but is an excellent carpeter if a bed of poor gravelly soil is prepared for it. The Sandworts keep their foliage almost intact winter and summer.

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Arenaria verna grows, though sparingly, in Cornwall and in some parts of Scotland; a typical little Sandwort with awl-shaped leaves in tufted cushions which keep their cheery emerald tint all through the winter. It is an admirable and easy little crevice plant if it has a bed of the sort of gravelly soil that it would get in its native mountains, for it is a plant of high altitudes. In northern gardens it is strongly to be recommended.

Arenaria cæspitosa is one of the hardiest; a mossy species with sharply speared foliage and wee flowers. The variety *aurea* is delightful in a paving. *A. purpurascens* is unique in having lilac blooms. It comes from Spain, and grows on the limestone. *A. montana* is well known for its easy, drifting habit on the rockery and its conspicuous white flowers. It flourishes in sun or shade, and is an excellent trailer.

In *Sagina glabra aurea*, a Pearlwort, we have another most accommodating little plant resembling *Arenaria cæspitosa*.

The Pinks are the glory of the Caryophyllaceous Order, and some books recommend several of the loveliest dwarf forms for crazy pavements, but surely no one wants to look down upon the

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fringed loveliness of a *Dianthus neglectus* that has been crushed by a footfall. Pinks are a limestone clan, frequenting rock ledges and mountain scree, and though they form spreading mats when comfortably grown, are not truly carpeters. *D. deltoides*, our native Maiden Pink, with its glaucous foliage, looks happy in the angle of rockery steps, but as a whole the family are better relegated to the higher parts of a rock garden, a moraine, or trough garden, or to the top of a limestone wall.

Saponaria ocymoides is the well-known trailing Soapwort of the Alps, a most desirable little species for a wall or dry chink in a paving. It flowers profusely in the early summer, when its clear, chalky pink petals bring a welcome colour into the prevailing yellows of the season. It grows best in a sandy soil.

A more beautiful Pink that is suffused with the true rose colour is seen in *Lychnis alpina*. The sea-green foliage is tufted, and its abundant bloom makes it very popular in the rock garden. It is of easy culture in any sunny place.

Cerastium tomentosum, Snow in Summer, is the most invasive of all rock plants, for its method of digging itself in makes it as ineradicable

as a weed. Indeed, it is the Mother of Weeds. It is not, therefore, to be recommended in pavings, but it is very handsome on a bank where nothing but rampers are to be tolerated. Its delicate, woolly flowers and leaves are, of course, individually beautiful. Two smaller and quieter relatives are *C. Biebersteinii* and *C. villosum*, the latter an effective little plant with large white flowers and mats of silvery foliage.

The genus *Alsine*, botanically included within the group *Alsineæ* of the *Caryophyllaceæ*, gives us some admirable crevice plants of the compact type. In some catalogues this genus will be found blended with *Arenaria* which it resembles in all important respects, differing only in the fewer divisions of the seed vessel.

Two good Alpines for steps or flagged gardens are *Alsine Baubinorum* and *A. laricifolia*. The former grows in attractive, furry green hummocks with conspicuous white flowers. The latter throws up its blossoms on longer stalks, and its mats are particularly brilliant in colour. Among the rarities of the genus there is the Himalayan *A. Berthamii* (syn. *glandulosa*) with microscopic flowers whose drooping petals reveal a shy little bunch of golden stamens. The *Alsines* as a

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group are granitic and sandstone plants, disliking lime.

Among the *Hypericums*, the dear and always desirable St. John's Worts, the two most suited to pavings have already been mentioned under the wall species, and so beautiful are they that care should be taken to place them where their shining faces can remain undisturbed by rough usage. This applies especially to *H. reptans*. Its trailing growth makes it very appropriate to the paving scheme, but the golden goblets that lie upon the blue-grey foliage should have a place where their full beauty can be observed. The plant is very free flowering.

The *Geranianaceæ* include some rather frail things like the *Erodiums*, unsuited to ground carpeting, and the same may be said of the choicer species of the *Oxalidaceæ*. Nevertheless, just as our native Wood Sorrel spreads a light carpet in the woods, so a few other species can be chosen to form graceful, shamrock-leaved tufts in a flagged garden. They are, unfortunately, all deciduous. The one usually grown is the bronze-leaved *Oxalis corniculata*, var. *atrosanguinea*; and indeed, there is no lovelier blend of colour than is given by this little Sorrel with its clear yellow

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flowers produced through summer and autumn. A corner on the shady side suits it for preference. Then there is another, *O. megellanica*, flowering in May. This resembles our Wood Sorrel, but its white cups are of a more solid and enduring quality. It is a beautiful paving plant for sun or shade.

The great Order of the *Leguminosæ*, the Pea and Bean tribe, whose natives are often shrubs or valuable trees, includes various little British plants like the Vetches and trefoils, but there are few trailers or crevice plants among them. *Anthyllis montana rubra*, however, is a mat-forming Alpine, accommodating in the rock garden or in a good position among flagstones. It makes wide but trailing masses of greyish foliage, which never become a nuisance, and its heads of crimson flowers, like clover, are very handsome in July. Leguminous plants are so distinct by their pinnate leaves and graceful habit from all others that it is pleasant to bring them into a mixed company. There is also a double form of the exquisite little native Bird's Foot trefoil, *Lotus corniculatus*. Everyone knows how this little creeper runs about the hillsides on poor soil, its yellow flowers, tinted with crimson,

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exhaling a sweet, wild scent. The double form is really an offence to botanists, nor has anything been gained by it. For the sake of a more conspicuous mass of colour, the winged symmetry of the flower has been completely sacrificed.

If a trailer is wanted for a spot on poor, stony, or chalky soil where other more fastidious things will not flourish, then some roots of the Bird's Foot trefoil, extracted from the downs, can be planted in the paving chinks; but they are hard to disentangle from clumps of Fescue Grass, and may introduce some undesirable weeds into the garden.

From the *Compositæ* we can take several of the dwarf *Artemesias* and *Achilleas* into our paving. *Artemesia lanata*, var. *pedemontana*, is a pretty little tufted species for the purpose; and *Achillea Huteri*, with white flowers, is also suitable.

The genus *Erigeron*, best known by its border perennials, includes some high Alpines for the scree, but *E. mucronatus* from Australasia is a very free-blooming, hardy little plant for wall or paving, covered with tiny pinkish daisies the whole summer through. It seeds profusely in a sandy soil. Or if a choice species is desired, there is *E. leiomurus*, a beautiful little tufted composite.

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The genus *Cotula* gives us one of the most charming and easily grown plants for flagstones in *C. squalida*. The foliage alone makes it worth growing, for it is particularly pretty with fern-like, dissected leaves which become marbled in poor soil. Though the flowers are inconspicuous, it is a very attractive little plant. Equally so is the similar *C. acanifolia*, a wee thing for small crevices in sun or shade.

Among the *Senecios* are several dear little mountain Groundsels for scree or paving stones. *S. incanus* comes from the granitic Alps. Its silvery leaves are pressed tightly into cushions among which the orange flowers shine out like little pins' heads. It is the smallest of its group, all of which need warm and dry conditions in a sandy or gravelly soil.

There is no reason why the charming corn-flowers of Greece, *Centaurea stricta* and *C. pindicola*, mentioned in the dry wall section, should not be grown in favourable places where they will not be trodden down.

Another good composite from South-east Europe is *Inula ensifolia*, a fairly easy plant for a sunny spot where there is good drainage. With its brilliant orange or golden daisies it makes

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a striking picture when it sits shimmering in a stony crevice in full sunlight. It grows in tufts with narrow, greyish leaves, and sends up its flower heads on solitary stems.

The genus *Helichrysum* is best known by its everlasting flowers, and its species are hardy. It includes a ramper from New Zealand, *H. bellidioides*, which will run about anywhere. Its leaves have a felt of minute silver hairs, and the stems produce tiny everlasting flowers in profusion. *H. trinerve* is in many respects a finer species, excellent for carpeting and with larger flowers. It trails along, hugging the ground, and is indestructible.

Among the composites of the flagstones, *Antennaria dioica* should always have its place. It is a tufted little plant, the flower stalks bearing several blossoms, each one having chaffy bracts of an everlasting quality. The rose-pink flowers of the hybrid *rosea* are especially pretty, and the plant is one of the most accommodating.

A word as to daisies. Few gardeners will endorse R. L. Stevenson's enthusiasm for a large lawn "so as to have a great field of daisies, the year's morning frost"; yet the daisy remains for botanist as for poet the world's sweetheart,

and though the gardener must banish it from his lawn as an interruption in a harmony, he may welcome it in a chosen spot where it may spread its small, sequestered loveliness in a boundary of stone. Lately the plantsmen have experimented with *Bellis perennis*, the common daisy, and have produced a delightful little hybrid which has taken the world by storm. Its name is Dresden China. It is a very small rose-pink daisy whose ray florets, as in all double forms, have been greatly multiplied, and it blooms as luxuriantly as all the rest. A spreading patch is a sheer delight among the stones. There is another baby hybrid, Rob Roy, whose flowers are crimson like those of the old double daisy of the cottager, but Dresden China is unsurpassed.

A rarer pygmy daisy for sandy places is *Bellium minutum*, a species from the Atlas. This has white florets stained with purple.

From the Atlas Mountains also comes the pretty species *Bellis rotundifolia cærulescens*, in which the flowers are lavender-blue.

Two last composites, and we will leave this friendly and beloved group until we come to them again among the choicer plants of the



RAOULIA SUB-SERICEA

Photo by R. Malby, F.R.P.S.

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scree and the rockery. *Hieracium bombycinum* is a hawkweed with woolly leaves and yellow flowers; a vigorous mountain species, and useful for a rough spot where a practically evergreen trailer is required.

The genus *Raoulia* is a most remarkable one, some of whose New Zealand species have become popular in our rock gardens. The curious silvery masses are said to look "like sheep at rest" in their native country. Their matted growth reminds the English botanist of the moss *Leucobryum*, so often found in pine woods and whose imperishable tufts may be coeval with the trees. The leaves are extremely pointed and spiny, and the flowers, when produced, have silvery white bracts surrounding the sulphur petals, ending in the usual fluffy head of the composites. *R. australis* is the easiest species, and can be grown between paving stones if the ground has been prepared with some holding soil below to give the roots moisture while the collar is kept dry. Damp is a fatal enemy of the genus, and a south position is necessary. *R. glabra* resembles the former species, but its creeping mats are of a deeper emerald hue, and *R. subsericea* is a minute curiosity for the moraine.

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The *Campanulaceæ* give us the old and indispensable rock plant, *Campanula Portenschlagiana* (or *muralis*), the Dalmatian Bellflower, one of the hardiest of crevice plants, continuing in bloom through most of the year in mild districts; evergreen, and, at its best, a sheet of purple. It should have a place in any paving scheme.

Among the other species, *C. pusilla* is the most perfectly adapted for a paving scheme. If a white one is desired there is the variety *alba*, or, if a paler purple, there is the hybrid Miss Willmott. As a rule, the *Campanulas* are better grown at the level of the eye or at various elevations in the rock garden. After all, one must always remember that a pathway is a floor. Nothing in the way of cultured refinement is more restful than a beautiful carpet, but it should take its place in a general harmony. Bold patches of colour are consonant with a quiet background of red or grey, but there should be no spaces where the detail is so minute or easily damaged that one's steps must be trained to avoid it.

But even though we shall refrain from putting the wide-open cups of the *Campanulas* or the pink stars of *Dianthus neglectus* under our feet,

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there are other brilliantly coloured Alpines that will make bright mats of colour as summer succeeds to spring. If the spaces are carefully chosen there is no reason why some of the small Phloxes should not be grown at the ground level.

The Phloxes belong to the Order *Polemoniaceæ*, and are mostly natives of North and South America. New hybrids of many tints can be chosen, some of them being sturdy little plants that increase rather slowly. *Phlox subulata* of the Alps in its variety *setacea* is one of the most reliable. There are pink, mauve, and white hybrids, all of which will grow in a sunny position if it is well drained. A gravelly loam is the best compost.

A very pretty hybrid is *Nelsoni*, white with a lilac eye, but it must not be confused with the species *P. Nelsoni* from North America, which is a plant with heathery stems and white flowers. *P. reptans* (syn. *verna*) is a neat semi-trailer with purple flowers.

Among the *Saxifrages*, some of the mossy species look delightful in a paving. Many and varied are their hybrids, James Brenner conspicuous among the whites, and Sir Douglas Haig in the red-flowered section. All make spreading carpets of glossy green and are often

used as edgings, but they are not easy to manage in a damp climate unless there is very sharp drainage. Nor can they be neglected after flowering, for the old stems should be "pruned," and the plant given a good top dressing of soil and leaf mould to encourage growth for the following year. They do well in most positions, and do not require full sunshine. The common white-flowered species, *S. decipiens*, increases so rapidly that it is better as a bushy edging than as a paving plant.

The Order *Paronychiaceæ* is a small one, its genera mainly confined to hot and sandy places in Southern Europe and North Africa. It follows that some of them may be suited to a sunny paving where the soil is dry. Two such can be chosen from the genus *Paronychia*, both being densely foliaged, evergreen carpeters, small and prostrate. There is not much to choose between *P. nivea* and *P. argentea*. They both have little silvery bracts enclosing the flowers, which are scarcely seen, being destitute of petals. They are highly individual, and worth growing for their singularity.

The *Labiata* with their essential oils remind us that, as the Elizabethans knew, a flagged

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enclosure should be, above all, the home of fragrance, where the sweet breath of aromatic and sweet-scented plants, so alive and friendly, is distilled from the leaves as we tread. There are many of the Mints and Thymes which are admirable—or even indispensable—carpeters. *Mentha requieni*—almost as microscopic as *Arenaria balearica*—grows in the smallest chink, from which it greets you with a scent like that of *crème de menthe*. Every paving scheme should contain this treasure.

The only one of our native Mints prostrate enough to make a good flooring plant is *Mentha pulegium*. This is the botanist's Pennyroyal, and it has also been used for generations in herbal medicine. It is a very easy and accommodating little creeper, and can be relied upon for rapid growth.

A few of these Mints in the crevices, with a bush or two of the Lemon Thyme (*Thymus citriodorus*), will make the garden a joy to walk upon or to work in. This bushy Thyme, like the smaller carpeters of the Mints and Thymes, is evergreen in any part of Britain. Among the creeping varieties, *T. serpyllum lanuginosus*, forming wide, grey-haired tufts, and *T. serpyllum album*,

the white form, are to be recommended; there is also a lovely red hybrid, *T. serpyllum coccineus*. The strongest scent is exhaled by *T. herba-barona*, whose odour is like caraway seed. All these labiates, Mints or Thymes, are, as Ruskin said, "sweetest when trodden under foot"; hence their superlative value for flooring plants, though, as people vary in their tastes, it may be that some will find *Mentha pulegium* and *Thymus herba-barona* a thought too pungent.

Stachys corsica and *Teucrium pyrenaicum* are two more good labiates for paving. The first grows neatly, and bears heads of creamy pink blossom upon bright green foliage. The latter has hairy tufts and broad heads of lilac flowers pricked with yellow.

The *Micromerias* are aromatic bushlings rather like the Thymes, but less hardy in cold places. A very beautiful species is *M. Corsica* from Southern Europe, with stiff branches and red flowers. *M. Græca* has soft, downy leaves and is more like a Thyme than any of them. All require a warm, sunny spot and gritty loam. The scent of *M. Corsica* is extraordinarily pungent.

Everyone knows and loves the dainty little Milkwort of upland pastures, *Polygala vulgaris*, of

the Order *Polygalaceæ*. There is a variant from the type called *P. calcarea* which grows only upon limestone, and which may well be cultivated as a trailer in the flagged garden. It has the glorious blue of its race, and is easily grown in a loamy soil with some lime. There is also an attractive Swiss cousin, *Polygala chamæbuxus*, from which a recent hybrid, *purpurea*, has been obtained. The curious wings formed by the sepals in this family are in the hybrid, coloured carmine, while the keel remains yellow. A bit of a harlequin, this plant, but dainty. A *Polygala* is an interesting addition to a garden, and the above species will flower happily in a paving.

To the Primrose Order, *Primulaceæ*, belong the Creeping Jenny of our roadsides, too well known for description, and the small Cyclamen. Jenny has a glorified Chinese cousin, *Lysimachia Henryii*, much like our native Moneywort, but more conspicuous and shining. They are both easy trailers for a window box or a wall or paving.

Cyclamen neapolitanum, with its pretty marbled leaves and rose flowers, makes a lovely patch between slab stones, and has the great advantage of blooming in autumn. *C. europeum* is equally beautiful and blooms in the spring.

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A good evergreen carpet plant is *Polygonum affine* (*Polygonaceæ*). Its handsome, pink-flowered spikes are thrown up in September, and it is a fine evergreen for a large paved space.

The Rose Order, *Rosaceæ*, has some quite inconspicuous members of which the *Acænas* or Burr Weeds of New Zealand are typical. *A. novæ Zealandæ*, *A. Buchanani*, and *A. microphylla* are excellent paving plants and carpeters. The first is the smallest of the group. Its foliage is russet and bronze, and its flowers, like those of all *Acænas*, are oddities, the petals tucked away inside a rampart of spiny crimson bracts which give a characteristic "fuzzy" appearance to the bristly fruits. Every paved garden where there is room to spare should have its *Acæna*. Also a *Globularia*, for here again is an evergreen plant with a loose, sprawling tuft of dark green leaves producing in summer solitary stems bearing a cluster head of small blue florets. It belongs to the Order *Selaginellaceæ* and should have a limestone soil dry and poor in quality.

Among the *Scrophulariaceæ* there are the Toad Flaxes, some of which have been mentioned as wall plants *par excellence*. Yet there is nothing prettier at the base of steps than two of the

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smaller species in close association. *Linaria pallida*, that chief of rampers, adapts itself to any position, horizontal or vertical; while the minute *L. alpina* creeps closely over the face of the stone, throwing up its dainty flowers in profusion. These two species are extremely pretty grown in this way together. The roots of *L. pallida* go foraging with remarkable results. I once poked a fragment into a piece of tufa, and in two months a sprig appeared on the opposite side, three inches away. The travelling thread had burrowed through its dark labyrinth till it emerged with a shoot all ready for flowering. In a rock garden it is, in fact, the small counterpart of the dreadful weed, *Ranunculus repens*; nevertheless, it is a thing of beauty, and should have its—carefully selected—place in the paving.

A good crevice plant where there is a loamy foundation is *Erinus alpinus*, familiar in the Alps. The type is lilac-flowered, very pretty and cool looking, but the new hybrid, Dr. Hænøle, is widely advertised. Its flowers are crimson, and it is a matter of taste which shall be preferred. Both are nice little plants, suited to the driest and most gravelly positions in the chinks of stones.

Among the *Veronicas* there are two small and

good Speedwells whose resilience renders them indestructible. The best are *V. Teucrium Trebane*, the golden-leaved species already mentioned under wall plants, and *V. satureoides* from Dalmatia, which flowers earlier than the rest and forms close mats of prostrate growth.

Speedwells repay a close observation, for through a lens they become objects of remarkable beauty. The little red rim at the base of the petals is clearly seen by the naked eye, but the glass reveals the pencilled veining of the tissues, with the shadows cast by the white stamens protruding from the tube. Though the individual flowers are fleeting, the leaves of the whole genus have a tough and resisting quality. A sunny bank is their ideal background, but they are beautiful trailing upon stone. To all of them sunshine is essential.

The genus *Maxus* gives one excellent little plant to the paved garden in *M. pumilio*. It should have a pocket of sandy loam with a little leaf soil added. Any sunny position on steps or between flagstones will give its trailing shoots a foothold. The foliage is dark green, tough, and enduring: the little, open-throated flowers, violet and white, are freely borne on the thick carpet of leaves. A nearly related plant, once called

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M. radicans, is now placed among the *Mimulus*, and, like them, requires some moisture. It is a good carpeting plant, therefore, for moist places, but not for the dry paving.

The Natural Order *Boraginaceæ* includes the familiar types of Borage, Forget-me-not, and *Anchusa*. The flowers, like those of the preceding Order, have a tubular corolla, and are generally five cleft. The *Myosotis*, or Forget-me-nots, so common in our gardens, are garden forms of the Alpine *M. alpestris*, and there are one or two exquisite mountaineers for the moraine. But there is one that can be used in a paving: its name is *M. cæspitosa Rehbsteimeri*, and its home is in Switzerland. It is a mat-former with smooth leaves, and the small blue flowers are on short stems. It is a pretty little Forget-me-not, worthy of a sunny place on gravelly soil where it will not be overrun by more rampant species.

The *Verbenaceæ* or vervain Order have flowers with a two-lipped corolla like the labiates and their allies, but the styles are terminal and the carpels united. Many species are tropical, and there are some useful timber trees among them.

The various hybrids of *Verbena chamædrifolia* are familiar in all our gardens, but *V. radicans*

is not by any means generally known. Yet it is a most useful covering plant for any dry, sandy place where it can be allowed to root as it pleases. Its rich green leaves lie flat on the ground, and its flowers are blue. It is perfectly hardy.

A less hardy but charming little species belonging to this Order is *Lippia nodiflora*, with heads of pink flowers, but it comes from South America and can only be recommended as a choice plant for the flagged garden where the climate is warm and the garden protected.

The last of our paving plants comes from an Order which has an unexpected sound, the *Urticaceæ*, or Nettles. As a rule, the plants of this Order have rough leaves with stinging glands, but some exceptional species are smooth-leaved, while others, like our native Pelitory of the wall are trailing species for dry spots. They are not usually beautiful, for the flowers are inconspicuous and the foliage rather harsh. The Prince of Carpeters, nevertheless, hails from this Nettle family. Its name is *Helxine Solierolli*, and its reputation is almost the worst in the annals of horticulture. A close, intertwining mat of brilliant green, it ramps loosely over everything, but its root system being slender, it can be torn up by

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the handful when it encroaches, as it always does, too fast. Its reputation as an indestructible ramper is so bad that it is rarely listed, and in one catalogue it is only mentioned as "asking for trouble," with no price attached. In the West of England it is known as "Mind your own business." Nevertheless, its drifting bosses of greenery are in their way beautiful, and I might have been inclined to say more about its habits were it not that I have just seen it described in Mr. Ingwersen's new catalogue as "that Corsican curse," which keeps me quiet.

Flagstones, like gravel, attract the weed population as surely as the Mullein attracts its moth. Two at least of the stubble weeds often insinuate themselves into the crevices. They are, first, the countryman's harbinger of fine weather, the pretty Scarlet Pimpernel; and, secondly, the ivy-leaved Speedwell, whose frail petals that open at dawn and close at sunset, are so beautiful, and whose ways are so ingratiating, that one is loath to sacrifice it. Indeed, in the early weeks of June, when its spreading branches become spangled all over with the lovely blue Speedwell flowers, one scarcely has the heart to do so. Let it, however, be clearly understood that this ingratiating

little weed is not being recommended. Looked upon askance, as we "literary gents" know that we often are by the horticultural profession, it behoves us to be careful. Let us add, therefore, that in the autumn clearance we must cast out all such invaders together with the motley company that includes *Poa annua*, the Silver Weed, Chickweed, Hawkweed, and the disreputable Pearlwort that is the poor relation of *Sagina glabra*—all these things that come from Heaven knows where, and find in the crazy pavement the weeds' true optimum. But if in the meanwhile they have appropriated a little of our sophisticated earth, probably no one is much the poorer. It is the audacious who conquer the earth even if the meek inherit it. Perhaps it is only in the flagged garden that the gardener, meditating upon these matters, may begin to look upon a weed less with the professional eye and more with the mind of the botanist.

The following lists are added for ready reference as to plants for pavings and walls:—

These will grow on the shaded side of a wall so long as they are not subject to the drip of trees.

All *Anemones*, *Aquilegias*, most *Campanulas*, *Daphne Cneorum*, *Oxalis enneaphylla*, most *Primulas*, *Saxifrages* of

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the mossy section, and London Pride, *Haberlea*, and *Ramondia*.

The following should be planted flat against the face of the wall.

Androsace alpina and *A. pyrenaica*, *Campanula isophylla* and *C. fragilis*, *Dianthus cæsius* and *D. glacialis*, *Draba alpina*, *Erinus alpinus*, *Haberlea rhodopensis*, *Primula marginata* and *P. viscosa*, the *Ramondias*, *Saponaria ocymoides*, the silver Saxifrages, *Sempervivums*.

Plants with silvery or grey-green foliage.

The *Achilleas*, *Alyssums*, *Androsace lanuginosa* and *A. sarmentosa*, *Anthemis*, *Artemisia argentea*, *A. sericea*, and *A. pedemontana*, *Cerastium Biebersteinii* and *C. tomentosum*, *Dianthus* in variety, *Geranium argenteum*, *Potentilla nitida*, *Primula marginata*, *Santolina chamæcyparissus*, many *Sedums* and Saxifrages, *Stachys lanata*, *Thymus lanuginosus*, *Veronica incana* and *V. pectinata*, *Eriophyllum cæspitosum*.

The following genera and species are evergreen.

Arabis, *Arenaria*, *Armeria*, *Cheiranthus alpinus*, *Dianthus*, *Draba*, *Erinus*, most of the *Helianthemums*, *Iberis sempervirens*, Saxifrages and *Sedums*, *Sempervivums*, *Silene alpestris*, *Paronychia nivea* and *P. argenteum*, *Globularia*, *Veronica repens*, *V. incana*, and *V. pectinata*, *Maxus pumilio*, *Polygonum affine*, the mossy Saxifrages, Thymes in variety, *Campanula Portenschlagiana* and *C. istriaca*, *Raoulia glabra*, etc., *Cotula*, *Antennaria*, *Cerastium*, *Arenaria balearica*, the *Alyssums*, *Aubrietia*.

CHAPTER VII

GARDENS IN MINIATURE: SINKS AND TROUGHS

MARITIME districts, though in some ways conducive to good gardening, are not all joy, for the fog and mist that often prevail are detrimental to the tender-leaved Alpines like *Androsaces*. Most of us find these charming plants difficult in ordinary rockery conditions, and in one particular year *A. sarmentosa*, from its appearance in my garden at the end of February, received the name of "skin and grief."

It was in that same year that I acquired a sink and began to take it seriously instead of treating it, as many of us had previously done, as a toy. The sink was knocked out of a dark and dank corner in a scullery and looked the filthiest and most forbidding thing that ever disgraced a garden. The builders were reassuring, and said that when it was "worked" it would be all right. And it was. In fact it was unrecognizable, and was hoisted up on a pedestal of penant stone. While it was empty, various comments were made

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by country people who chanced to see it. Was it for a dog or a pony? When I replied that it was for a garden, they said: "Go on!" After the floor had been covered with broken crocks, a piece of wire put over the big drainage hole, the scree mixture put in, and some plants inserted, an old countryman and his wife had a view of it. "Well I never," said the man. "To think of that there trow making a garden. We have got one in our back kitchen," he reminded his wife. "Shall us knock him out and put in a cement one?"

But no, the wife did not fancy a cement one. I told them that old stone sinks or old farm troughs, even if they leaked, would sell at a good profit, and I told them about the many fine stone troughs that had been made for the horticultural trade since the genius of Mr. Clarence Elliott set the ball rolling. I repeated that even old pig troughs could be utilized, and that many such had been rescued, broken and leaking, from the builder's yard, and that enthusiasts were willing to pay well for such derelicts. To all of which he said: "Well I never!" at intervals. Then I told them of the wonders of Chelsea, and of the rock and water gardens.

But the wife thought that money might be better spent. "I think they goes beyond 'emselves with new-fashioned things nowadays," she observed.

There were, however, many others who greatly admired the sink; and since that time, several people round about have obtained one, either new or second-hand.

All this extraordinary ignorance of the latest horticultural vogue will, I am sure, sound quite incredible to the sophisticated dwellers in the home counties. The saying that "one half of the world did not know how the other half lived" must surely have originated in England, where the differences of thought and daily custom among the various districts seem to be greater than in other countries. Perhaps, on the one hand, innate conservatism may account for it, blended with the mixture of races at our back. Meanwhile, if you get to know the country well, you will observe that while Westmorland or Shropshire may resemble Surrey in its habits to-morrow, it certainly does not to-day.

One season taught me a good deal about sink gardening. I found that I could grow things in this way that could only be grown with moderate

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success in the rock garden. At the end of one season some of the plants began to grow over and into each other, making great mats of fibrous roots, while the Saxifrages surrounded their central rosettes with brave young colonies. Shiftings and changes became so imperative that one naturally asked oneself what was the reason. For a sink has no depth of earth such as Alpines usually demand; nor is there any underground water as there is in a well-built moraine. The plants had been given an ordinary Alpine compost, viz. a mixture of sweet loam (two parts), leaf mould (one part), and coarse sand (one part); all this mixed again with five parts of sandstone chippings. Round the collar of each plant some granite chippings had been added, while one or two of the lime-lovers had been given a little mortar rubble. The *Androsaces* made good growth throughout the summer and began to bloom in May, whereas they had hitherto remained barren.

Perhaps it is the thickness of the stone walls combined with the very sharp and constant drainage that ensures the success. Anyhow, a good many species that are apt to become "miffs" in the moraine flourished in their new quarters.

There is no doubt that a piece of tufa is very

useful in the sink as, indeed, it is in any scheme of garden work, for plants thrive upon it in a remarkable way. An upright piece which has been worked into two or more pockets for Alpines can be inserted in one corner, or else a raised and rugged stone can be made to run across like a ridge. Many of the smaller things will grow and spread healthily and easily in such a situation. A small tree also adds greatly to the general effect. There are many Conifers that can be chosen, but I think that there are two of outstanding merit. One is *Picea Albertiana conica*. The name is a little misleading, for this exquisite little Conifer is apt to droop a little and is less severely conical than some of the Cypresses. The delicate branches are of a brilliant yet tender green, and the foliage has the sweeping curve characteristic of the larger spruces. It grows slowly, which is also a consideration, for many cultivators have had to transplant their dwarf Conifers after a year or two because they grew out of bounds. Only the Japanese, it seems, have the secret of persuading a dwarf to remain a dwarf all its natural—or unnatural—life. These small Conifers, as a rule, grow out of bounds pretty quickly, and have to be confiscated

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before they absorb all their near neighbours' nourishment.

Next in merit perhaps to this supremely lovely rock spruce is the little Cypress, *Cupressus Fletcheri*. Its soft branches are bluish green, erect, and bushy. It remains dwarf for a year or two, but it grows with the hereditary impress of its past generations, which added four feet to their stature. The slowest of the Cypresses is *C. obtusa juniperoides*, quite a pretty little compact tree. Two other dwarfs are *C. pygmæa*, a beautiful little tree with spreading, horizontal branches, and *C. obtusa tetragona minima*, the pygmy mentioned in Chapter II.

Of the Junipers, there are only a few with an upright, conical habit suitable for the miniature garden, but the species *Virginiana* has given rise to a *nana*, a curious little object with compact branches forming a clustered head.

There are, again, some tiny editions of the common Scots Pine. The form *beauvronensis* is a thoroughly Japanese variety with dense, dark foliage.

The Yews have produced a miniature in *Taxus baccata pygmæa* which looks like an illustration in a fairy tale.

So much for a few of the most popular trees. They are easily planted, and settle down at once into their new conditions.

The tufa stone next engages one's attention. The soft, friable structure soon yields to a hammer and chisel (a geological hammer is the ideal weapon), and the holes are filled up with the same Alpine compost, but with fewer stones. In a vertically placed bit of tufa, a deep hole will make a cave-like cavity, and the stone can be grooved so as to form a projection after the manner of the ledge in one of the courses of a wall. In this way you get shelter for the winter, and can insert a "miffy" Alpine that will not need to be covered with glass. A more shallow pocket is suitable for hardier things. The tidily growing and ever-beautiful little St. John's Wort, *Hypericum reptans*, looks its best when its green mats and golden salvers are spread upon the dark grey surface of tufa stone.

In the miniature cave several of the rarer Alpines or Asiatics can be gently nurtured. *Shortia uniflora grandiflora* is usually grown in scree or in a pan in the Alpine house, but there seems no reason why it should not succeed in a scooped-out hollow in the tufa, or placed



SHORTIA UNIFLORA GRANDIFLORA

Photo by Herbert Cowley, Editor of "Gardening Illustrated"

in some such position where it is sheltered from winter fog. It is a red-letter day for the cultivator when he first beholds the loveliness of its rose-pink, fringed, and dainty flowers.

The tufa makes an excellent home for the silver Saxifrages if they can be given sufficient room, and also for the *Kabschias*, which flourish mightily upon it, as they do, in fact, among the stones in the sink. Faldonside with its yellow flowers and red stems is a beautiful early hybrid, and so is *S. burseriana sulphurea*, flowering in February. Another good plant for these conditions is the hybrid Riverslea, from *S. Godroniana* and *S. lilacina*. Its hummocks are silvery, and the flowers, borne on two-inch stems, are deep rose in colour. The hybrid *Gloria* of *S. burseriana* is one of the earliest and best of the pure white forms.

If space can be given to one of the larger species, then it is interesting to try the remarkable *S. Griesbachii*. Some say that the Wisley variety has "gone one better," but others declare that the difference is slight. I have not yet tried it through a winter, but it seems to have settled down happily in the sink, flowering in April. Its silvery hummocks are packed so

tightly with leaves that they look like little crinolines with the stalk rising from an elongated dome in the middle. The stem is curved like a crozier, and as it uncurls, the flowers, or rather the bracts, are seen clinging to the stalk, and maturing to a vivid crimson tipped with emerald green. This wonderful *Engleria* should be grown wherever possible, for among Saxifrages it is unique.

Sempervivums, of course, do excellently in a sink, but their colonies increase quickly and have to be reduced for the sake of room. The same applies to the *Sedums*, but one or two of them are very useful for their bright colour in late summer. *S. Stabli* is the funniest of the group by reason of its fat red leaves which fall off for propagation. A rather uncommon species is *S. gemniferum*, from Southern Europe. It has small branches, but throws up a fine flowering stem in late summer. The pink blossoms are large and brilliant.

It often happens in trough gardening that a time comes when shiftings become necessary, and new experiments can be made. Here is a suggestion relative to a very pretty little plant, a member of the *Rubiaceæ*, *Houstonia cærulea*. It is

the species that M. Correvon called "the heaven of blue china." The blue is that of an English sky, disseminated over a mass of tiny blossoms, and the plant, like our Wild Madder, is very small and leafy. The *Houstonia* needs a quiet place where its delicacy can be observed, and it succeeds very well on the tufa where it gets sunshine for about half the day.

The following species all did well in the miniature garden, giving some bloom in late spring and early summer. The exquisite native Gentian, *Gentiana verna*, is never reckoned an easy species, even in the moraine, but it appears to be holding its own in the sink, though it is not increasing. Its close companions are *Dianthus neglectus* and *Geranium napuligerum*. The latter is sitting quiet, but a few flowers appeared spasmodically through the summer. The plant was brought by Farrer from Yunnan, and is a little like the silver-leaved *G. argenteum*, but its tuft is smaller and its pink flowers rather larger. Very lovely the flowers are, with a thrill hidden inside them, for as they open, the stamens are seen to be black, or, more precisely, the anthers are deep purple, a colour which in some aspects seems to be black. You get the same surprise on

seeing them that you get from the white stamens of a *Phacelia*. The pink of the petals is like that of apple blossom, and the leaves are as delicately cut as those of *G. argenteum*. Near this choice little Geranium I had at first *Erodium chamædrioides*, a useful plant from its long flowering season, but, charming as it is, it is not very showy in a sink, though the form *rosea* gives us delicately tinted blossoms of great beauty with their reticulated veins. It has now given place to *Æthionema pulchellum*, which is the neatest of the family for a small space, and always beautiful when it blooms in May.

Towards the end of the month the *Asperulas* begin to think about flowering. These relatives of our native Woodruff are interesting dwarf species, and no occupant of a trough is more generally successful than they. The hardiest is *A. Gussoni*, which lived unsheltered here through the winter and then produced innumerable clusters of pinkish trumpets from its dark green tufts. The plant is very small and takes up little room in the stones, for it does not increase quickly. An even smaller and daintier relative is *A. suberosa* from Greece. A pan of this little Woodruff in the Alpine house is one of the

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delights of May, but although its woolly foliage makes it susceptible to a damp climate, I have found it accommodating in the sink with a piece of glass (a *cloche*) protecting it and the allied *Androsaces* in the winter. It is one of the daintiest of small Alpines with its clusters of pink trumpets, rather deeper in colour than those of *A. Gussoni*.

Up to the present it seems that *A. Chumbyi* and *A. lanuginosa* will prosper in the sink. They have produced modest results in the way of flower, and more may be expected from their second season. Even "skin and grief" (*semper-vivoides*) has recovered from its melancholy aspect. A pretty species for a sink is *A. chamaeiasme*, for its long runners may fall down over the walls.

In the early part of the year a new plant, *Morisia hypogæa*, was introduced. This is an extremely pretty little Crucifer often grown in the Alpine house. It has a preference for very stony, inhospitable soil, and needs some protection in winter, but it is worth some trouble for its brilliant flowers which are so prominent on their short stems against the dark, serrated foliage.

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The *Phyteumas* have been mentioned in the wall section. The pretty cluster-headed *P. Schenckzeri* of the Swiss pastures does well in a sink where a little mortar rubble has been added to its soil.

Several *Campanulas* are well adapted to this form of miniature gardening. Though not a lover of white Bellflowers, I tried the var. *alba* of the lovely *C. nitida*, and most beautiful it was. *C. Allioni* succeeded without any trouble, and so did *C. arvensis* until a caterpillar—a really desperate marauder—crawled up one night and ate it flat as only a caterpillar can do. *C. turbinata* came out in August, and was a joy, with its big pale green leaves and blue saucer-shaped blossoms. And by the by, the novice may think that in winter these *Campanulas* are dead, for nothing remains of them above the stones but a sorry-looking stubble. One has to wait till spring is well advanced to see the young leaves forming. Like many other high Alpines, notably the *Androsaces* and *Potentilla nitida*, they, too, benefit by a sheet of glass in the winter, and it is quite easy to place a *cloche* protection on part of the sink for the winter months. Plenty of air blows in through the open ends, but rain and mist are

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excluded. For the more difficult species, such as *Campanula speciosa* or the dwarf *C. Zoysii*, which could probably be grown in a sink as they are in scree, some protection would be an advantage.

Potentilla nitida has done well in the "miniature garden" and so have one or two of the smaller Pinks, *Dianthus squarrosus* and *D. neglectus*, for example. Only want of space prevented one from growing more of these adorable Alpine Pinks, all of which, I feel sure, would succeed as well in a sink or trough as in the moraine.

Their relatives, the *Silenes*, were represented by *S. Schafta*, which flowered industriously into October, and the charming *S. Elizabethæ*, which, however, died after flowering. Of course, *S. Hookeri* must be the next experiment, for in this sort of hobby one never comes within sight of an end, and no one who has had the luck—or misfortune—to see this startling Californian beauty at the Shows could live contentedly without it.

Two *Penstemons* are adaptable to sink culture: *P. rupicola* and *P. cristatus*. They are neither of them as distinguished as the shrubby *P. Scouleri* of the rock garden, with its wonderfully luminous flowers of silvery lavender, but they are beautiful;

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P. cristatus, with reddish flowers, and *P. rupicola* (now listed as *Davidsoni*), with brilliant rose-purple blossoms. The growth, too, of this species is remarkable, with close-set, bluish leaves on wiry branches. A choice subject for sink or scree.

The rare *Linum salsaloides prostratum* has been mentioned, and may be tried in scree, sink, or wall, wherever a sufficiently hot, dry, and perfectly drained position can be found for it. The sturdy *L. flavum*, although rather tall and bushy for sink culture, was nevertheless a happy introduction with me, for its shining yellow flowers were produced from June to September, or later, when colour was scarce.

Gentiana sino ornata is said to do best in a bed of pure leaf mould, but it is being tried in the sink. When established and happy, its wonderful trumpets are undaunted by the chill November rains, and there is hardly a day up to the middle of the month when one cannot be certain of being able to peep into that long, clear throat of blue and green. Its supreme hardiness seems to be established, and is a perpetual wonder to those who have so often failed with the other members of its treasured but uncertain race.

It will be understood that all the plants chosen

for this sink garden were such as are commonly grown by Alpine enthusiasts. No species of peculiar rarity or difficulty was attempted, and many radiant visions of the type of *Primula Winteri* or the *Lewisia*s are still beckoning from the region of dreams. All that can be claimed is that many plants out of the reach of anyone who has only a rock garden will undoubtedly grow in these conditions as well or better than in a moraine, while many gardens are too small for a well-drained moraine to be inserted. A middle alternative is, I believe, an area of stone chippings placed upon a well-excavated site, with boulders of tufa rock here and there. This stone has proved itself exceedingly valuable for Alpine culture, and it might well be much more used than it is. Mr. Symonds Jeune, in his book upon rock gardening, has a most interesting section upon the association of this stone with the magnesian limestone series, and I have seen large pieces of it dug out of the ground in Somerset and thought to be of little value. An excellent little garden could be constructed out of tufa blocks resting upon chippings of limestone in which, with the addition of a little Alpine compost, Saxifrages, *Dianthus*, etc., could

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be grown to perfection. The sink garden may be regarded as a halting-place where much wisdom may be gathered and many ideals attained, but, before long, its spatial limitations will urge its possessor to seek fresh fields for his experiments. It is, however, invaluable in small gardens and in towns. Captain Kingdon Ward said truly that "beauty was at our doorstep all the time, though we held the world in fee for it," but in many sad little places bricks and mortar shut it out. Yet to many such the stone sink might bring a world of new experience and pleasure, for even in districts where the air is never perfectly pure and where in consequence the people of the high hills could never flourish, there are, nevertheless, dozens of happy-natured species that will give abundant bloom in return for gritty soil and perfect drainage two or three feet from the ground.

To the small individual selection given in the foregoing pages I will add another, verified by the personal experience of others who have grown them.

Myosotis rupicola (Boraginaceæ). A lovely small Alpine Forget-me-not.

Alyssum serpyllifolium (Cruciferæ). Small, grey-leaved, golden-flowered variety.

Alyssum podolicum. Larger and tufted, white flowers.

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Arenaria nedavensis (Caryophyllaceæ). Emerald green cushions, very small.

Arenaria gracilis. Small grassy tufts and conspicuous white flowers.

Arenaria rotundifolia. Mats, with starry flowers.

Alsine grandiflora (Caryophyllaceæ). Wee tufts and white flowers.

Dryas minor. A small edition of *D. octopetala*.

Ranunculus pyreneus. Charming white buttercup, six inches high (a rarity).

Eriogonum sub-alpinum major (Polygonaceæ). Trailer with yellow flowers.

Gentiana lagodechiana. An easy plant for late summer.

Hypericum Lydium (Hypericaceæ). Pretty trailing species.

Oenothera rosea mexicana (Onagraceæ).

Sedum cœruleum (Crassulaceæ).

Wahlenbergia tasmanica (Campanulaceæ).

Scabiosa ptercephala (Dipsacaceæ). Pretty mauve Scabious, good for sink garden or wall culture.

Rosa Roulettii (Rosaceæ). The pretty Fairy Rose four inches high.

Primula minima (Primulaceæ). Dwarf pink-flowered species.

Parochetus communis (Leguminosæ).

Omphalodes Lucilia (Boraginaceæ). Forget-me-not, blue flowers.

Lychnis alpina (Caryophyllaceæ). Pink flowers.

Helicbrysum trinerve. Prostrate creeping species (Compositæ).

Farsetia eriocarpa. A composite with velvety white leaves and yellow flowers. Equally good on a wall or in a trough in full sunshine.

Jasione humulis (Dipsacæ) and *J. Jankæ*. Cluster heads of blue florets.

Hippocrepis comosa (Compositæ). A pretty little native Hawkweed. Suitable for wall or trough.

Many of the *Dianthus*, beside those already mentioned, would be found perfectly suitable.

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In one sense the trough garden may be conceived as a miniature scree, and as the scree itself has lately been recommended even to the owners of small gardens in a well-aerated situation, it may not be amiss to add a few words concerning it.

As a method of growing Alpines and saxatile plants it was initiated by Professor Kerner in the Botanical Gardens at Innsbrück in about the year 1866, since when, encouraged by Reginald Farrer and other Alpine enthusiasts, English gardeners have adopted it in increasing numbers.

A scree does not need the current of underground water which the natural moraine in mountain districts possesses and the artificial moraine by various methods seeks to imitate. The natural scree of a mountain chain is only a collection of pounded grit and broken stones derived from the rock face and gradually forming a clear, hard surface through which all moisture, whether of rain or snow, is quickly drained away, leaving a dry, starvation diet of dust, sand, and chippings for plants to subsist on. Such a formation is not difficult to imitate, for it only needs an excavation of two or three feet, a layer of broken brick at the bottom, and a filling up

with one of the scree mixtures sold by many horticultural firms. Those who live near limestone or granite quarries can collect the stone for themselves and crush it into fragments. One part of sand and leaf mould in mixture with six parts of stone chippings will furnish a sufficient sustenance for these choice treasures which so often die through too rich a diet or damp in the English winter. A bit of scree is undoubtedly a perpetual joy and interest in a garden, and will accommodate more plants than the trough. Placed between a few boulders of rock, there need be nothing artificial in its appearance. Nor is the sense and savour of an English garden in any way spoilt by providing this shingly home for such plants as the *Lewisia*s, *Shortias*, or the Alpine *Campanulas*.

The Alpine Society has issued an indispensable book on scree gardening, and there are others also which act as guides to this special form of horticulture. A scree should, of course, be reserved for such species as are difficult in other conditions. For limestone scree there is plenty of choice among Saxifrages, *Androsaces* (such as the silver-tufted *A. argentea*), *Dianthus*, and some of the more uncommon Gentians like *G. brachy-*

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phylla, *G. saxosa*, or *G. corymbifera*. With a little leaf mould, *G. Veitchiorum*, *G. prolata*, *G. ornata*, and the splendid Chinese *G. Purdomi*, will do better than under any other treatment.

The dwarf *Papaver Rhæticum*, the *Lewisia* (*rediviva* and *Howelli*), and *Townsendia Wilcoxiana* are all suitable. The New Zealand *Celmisia angustifolia* should also be tried.

For granite scree there is the lovely Alpine, *Silene pumilio*, of the dolomites. When this plant is well grown, it is a joy with its rose-coloured flowers thrown out at the base of an emerald dome.

Then, of course, there are dozens of the rarer *Campanulas* and *Primulas* and the charming blue-flowered campanulate, *Cyananthus*, together with choice *Geranium* species such as *G. sub-caulescens*, carmine-flowered.

There are several *Æthionemas* to choose from, and one or two rare *Wahlenbergias*. The incomparable *Calceolaria Darwinii* is generally seen in the Alpine house, but under favourable conditions may succeed in scree. All these and hundreds of others can be picked out from the excellent catalogues sent out by high-class firms with cultural details. Scree gardening is at all

times an adventure, but there really is no reason why it should not be oftener tried. Some of the rarer plants may be more expensive than the majority of herbaceous things, but the first expense is often the last; for, when once established, the tufts give little trouble, and many Alpines increase in good conditions year by year.

We have seen, then, that there is much to be said for all these various methods of what we may roughly call "gardening in stone." The paving stones, the crumbling wall, the stone sink or trough, the slabs of tufa set in a garden of stone chippings, all tell the same story of the primæval association of the living plant with the basic structure of the world. All through the year it is a pleasant thing to share in this old partnership. For when the herbaceous border is sodden and the plants tucked away asleep, the tufts and hummocks in the crevices, which seem to be living like a camel on its hump, are yet entirely awake and ready to twinkle in the palest gleam of sunshine.

In a liliputian landscape, where the mountains are blocks of tufa and the valleys are of scree, there will often occur landslides or changes, or

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sometimes losses, which call for winter work and for new adaptations. In the wall crannies and in the sink garden, work even in the short, dull days of December can be happily carried on. It is in the winter that one thinks out one's plans or changes, and repairs one's losses; one carries forward the picture of last summer into the next, borrowing from the future to repay the past. And all the year through one has to take counsel with the plants themselves, studying how to give to each the best opportunity to fulfil the purpose of its tiny life. Assuredly a few square yards of "dry" garden will bring more joy to the wise cultivator than many houses of glass or acres of land.

"Sell your coat and buy betony," said the medieval doctor to the sick.

"Of two loaves," said another, "sell one, and with the dole buy hyacinths to feed thy soul."

May we not add a further word of counsel? "Buy stones, and create beauty."

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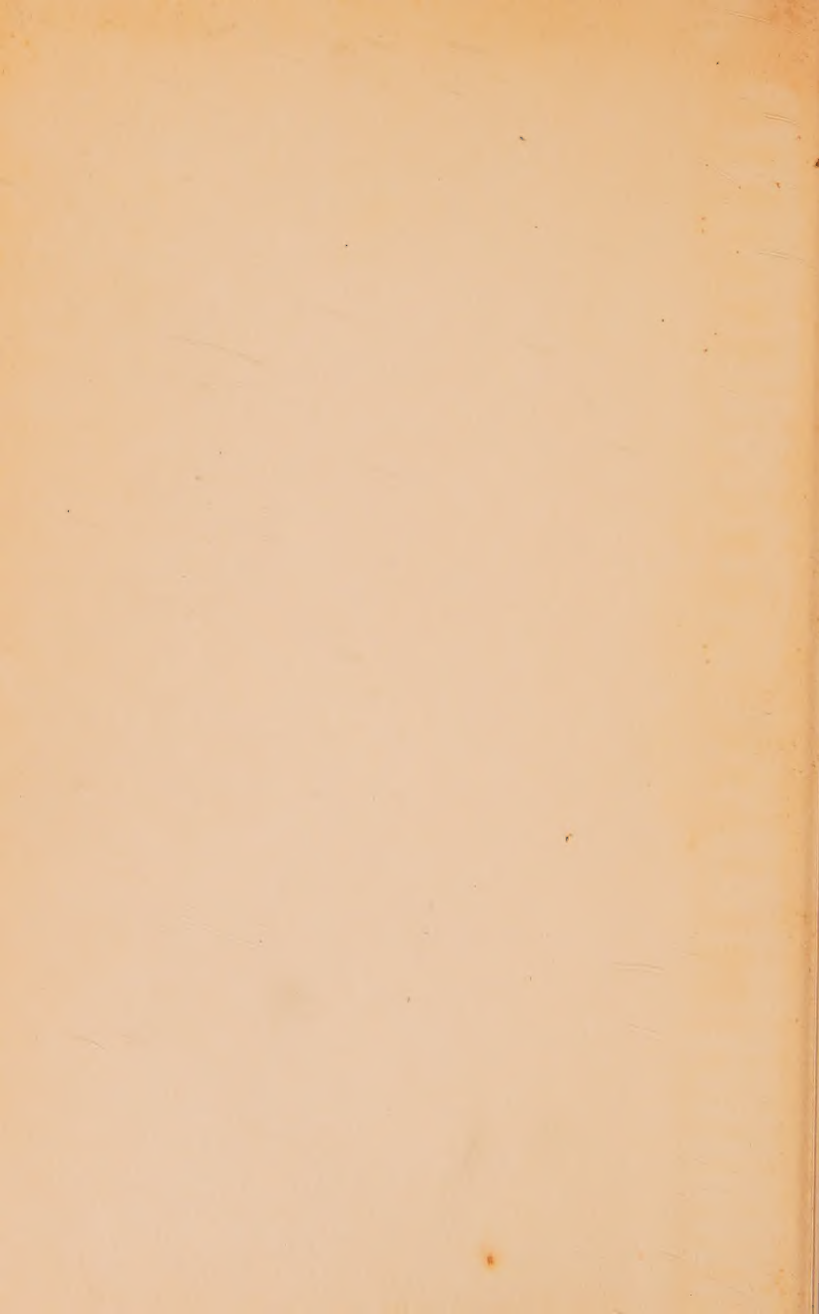
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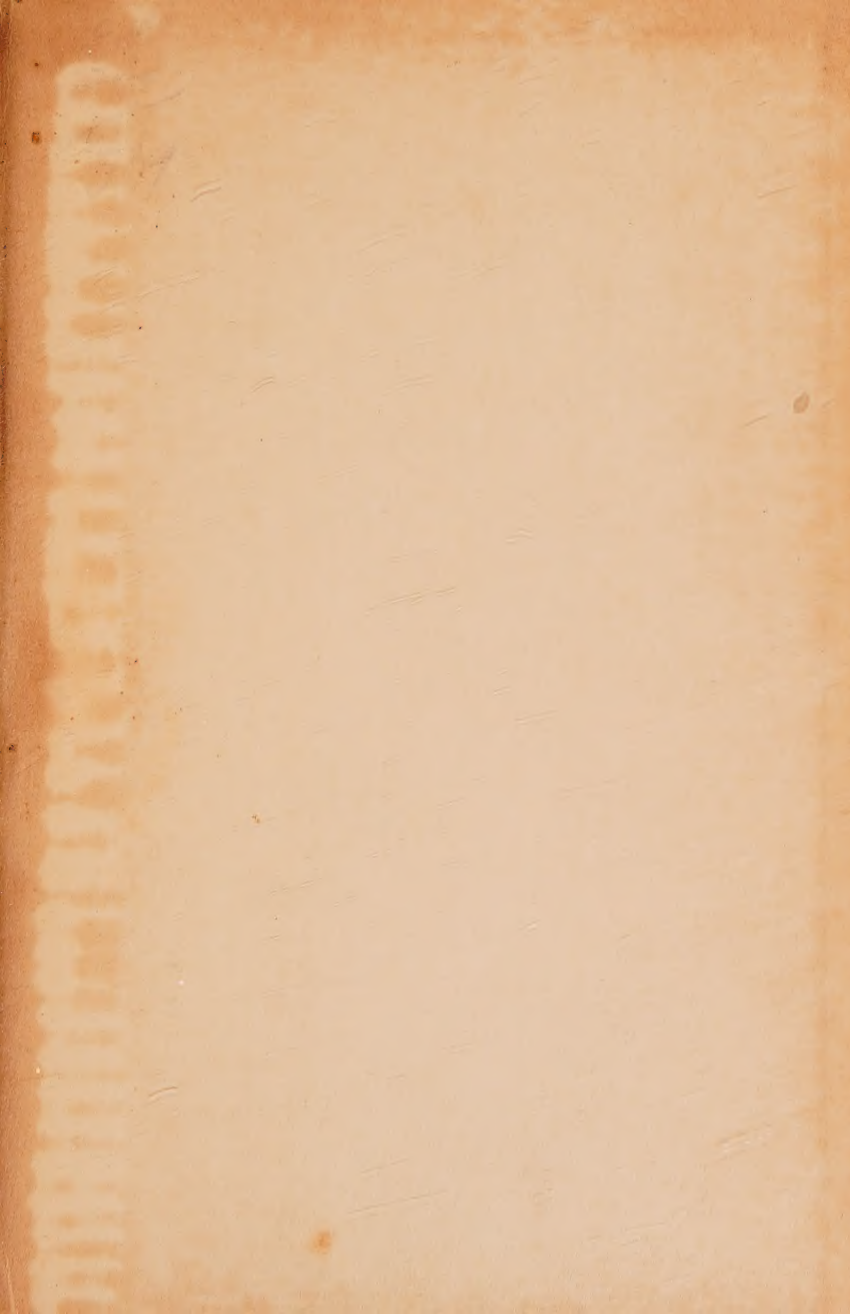
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